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DOWNSTREAM MOVEMENT OF LAMPREYS AND FISHES IN THE CARP LAKE RIVER, MICHIGAN

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UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

United States Department of the Interior, Stewart L. Udall, Secretary
Fish and Wildlife Service, Clarence F. Pautzke, Commissioner
Bureau of Commercial Fisheries, Donald L. McKernan, Director

DOWNSTREAM MOVEMENT OF LAMPREYS AND FISHES IN THE CARP LAKE RIVER, MICHIGAN

by

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ABSTRACT

An inclined-screen trap was installed on the Carp Lake River, Emmett County, Michigan, in the spring of 1948 and has been in almost continuous operation since that time. The major goal of this project--a precise determination of the length of the larval life of the sea lamprey--was not attained because of the contamination of the stream above the dam with spawning lampreys. The lampreys and other fishes collected in the trap did, however, provide extensive and valuable biological information. The present report documents much of the information, largely in tabular form, accumulated over the operating seasons, 1948-49 through 1957-58; the amount of detail has been varied according to the importance of the topic under consideration or the amount required to bring out a particular point.

Records given for lampreys include: annual catches of sea lamprey, American brook lamprey, silver lamprey, and of larval lamprey, not fully separated by species, 1948-49 through 1957-58; daily record of catches of recently transformed sea lampreys, water temperature, water level, weather, and, for some seasons, information on length, 1951-52 through 1957-58; length-frequency distribution of recently transformed sea lampreys for 8 seasons of the period, 1948-49 through 1957-58; mean weights and ranges of weight of samples of recently transformed sea lampreys in 6 seasons of the period, 1948-49 through 1957-58; trend in the monthly average length of recently transformed sea lampreys, October 1954 through April 1955; semi-monthly totals of catches of larval lampreys (sea lamprey and American brook lamprey, combined), 1948-49 through 1957-58; monthly length-frequency distribution of larval lampreys (same 2 species), November 1949 through June 1950.

Data on other fishes included semimonthly totals of catches of individual species each season 1948-49 through 1957-58; some information was given on lengths. Altogether, 22 species other than lampreys were caught in the traps.

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DOWNSTREAM MOVEMENT OF LAMPREYS AND FISHES IN THE CARP LAKE RIVER, MICHIGAN

An inclined-screen trap was first installed near the mouth of the Carp Lake River, Emmet County, Michigan in the spring of 1948. The device has been in nearly continuous operation since that time. Detailed reports of the construction and operation of this trap and of the downstream movement of recently transformed sea lampreys, Petromyzon marinus, in this river in the 1948-49, 1949-50, and 1950-51 seasons have been presented by Applegate (1950) and Applegate and Brynildson (1952).

The purpose of this report is to present a supplemental record of the downstream movement of lampreys in this river in the seasons of 1951-52 through 1957-58 and to summarize the records of fishes captured in the trap during the entire period of operation.

Studies of the downstream runs of recently transformed sea lampreys and of larval lampreys in the Carp Lake River since 1952 generally substantiate the data presented by Applegate and Brynildson (1952). In the following discussions of the tabular data given here, comment is made only where the years of additional records have provided a better understanding of some features of the migration.

DOWNSTREAM MOVEMENT OF LAMPREYS

During the 10 annual migratory seasons between the summer of 1948 and that of 1958, 74,299 transformed or partly transformed sea lampreys, 847 adult brook lampreys (Lampetra lamottei), 27 adult silver lampreys (Ichthyomyzon unicuspis), and 72,979 larval lampreys of several species were captured in the trap. The numbers of each species and life-history stage taken in each year are summarized in table 1.

Certain groupings of the data in table 1 require explanation. Beginning with the 1953-54 season, no further effort was made to distinguish between transformed and partly transformed sea lampreys. The latter comprise such a small portion of the total run in any year that their separation after the first 5 years served no useful purpose. At the start of these studies, no entirely reliable means existed of distinguishing between the larvae of Petromyzon and Lampetra. The larvae consequently had to be combined in all records. This practice was continued after better means of identification became known because trained observers were not available to examine each day's catches in the trap. This same lack of trained observers also prohibited maintenance of separate records for Ichthyomyzon larvae after the 1952-53 season; the numbers fortunately were few. The relatively sparse numbers of adults captured of the brook and silver lampreys suggest strongly that very nearly all of the larvae taken in the Carp Lake River trap were those of the sea lamprey.

Daily records of catches of recently transformed sea lampreys moving downstream during the migratory seasons 1951-52 through 1957-58 are presented in tables 2 through 8. Ecological factors such as water level, water temperature, and prevailing weather, are also included in these records.

The principal features of this migration of the sea lamprey are as follows: downstream movement usually begins in early October, extends through the winter and early spring, and ends sometime in April. A few scattered individuals may come downstream as early as mid-September or as late as mid-May. The migration is usually greatest in late March and early April; a lesser peak of activity appears in November. During the intervening winter months, a few come downstream nearly every day. Sudden minor spurts of activity may also occur during this period.

Nearly all movements of lampreys in the Carp Lake River appear to be associated with rising or fluctuating water levels. Late fall rains which increase the flow bring down the initial surge of newly transformed individuals. Flood conditions resulting from midwinter thaws and rains are generally accompanied by sudden increases in downstream movement. The greatest downstream migration occurs on the rise and crest of the floods resulting from the general spring breakup in late March or early April. For this reason, the calendar dates of the migration vary from year to year.

The numbers of larval lampreys that moved downstream in each season between the summer of 1948 and that of 1958 are presented in table 9 where the catches are summarized by semimonthly periods. Downstream movement of larvae is similar to that of the recently transformed sea lampreys in that it is largely associated with flood conditions in the watershed. The greatest activity is in late March, April, and May during the "spring breakup." Rising or sustained high water in almost any other season is nearly always accompanied by some downstream drift of larval lampreys.

LENGTH AND WEIGHT OF MIGRANT LAMPREYS

Periodic samples of recently transformed sea lampreys were measured for total length to the nearest millimeter in all seasons, except those of 1950-51 and 1951-52. These collections normally consisted of all individuals captured in the trap on alternate days. Occasionally, this schedule became irregular due to adverse collecting conditions. Random samples of migrants were also weighed individually on a dietary scale to the nearest 0.1 gram. Length-frequency distributions for transformed sea lampreys captured in each of 8 migratory seasons are presented in table 10 and the minimum, average, and maximum weights of samples of these migrants are presented in table 11.

Among all sea lampreys measured (15,110 individuals), the smallest was 95 millimeters and the largest was 243 millimeters in total length. The average lengths of migrants in the runs of each year varied from 143.6 to 151.4 millimeters. The weights of the sea lampreys ranged from 1.8 to 9.8 grams; the average weight of samples varied from 3.6 to 5.1 grams.

The average length of migrants increased steadily between the 1948-49 and 1954-55 seasons (table 10). This change is attributed to reduced competition among the residual stocks of larvae since the Carp Lake River dam and trap blocked all, or nearly all, adults from spawning in the watershed during these years. Beginning with the 1955-56 season, the size of migrants declined. An appreciable escapement of spawning-run adults above the trap is believed to have taken place about this time. The smaller size of recently transformed individuals in the last 3 years of study may reflect increased competition with new year classes of larvae which were added to the stock.

The size of the recently transformed sea lampreys increases progressively during each annual period of downstream movement. The autumn migrants are composed of the smaller individuals. Average size increases during the winter and is greatest during the late winter and early spring when downstream movement is at its peak. This change of length is reflected to some extent in the mean lengths of the daily samples as given in tables 3 through 8. It is illustrated better by the average lengths of all migrants taken in each month of a typical migratory season as presented in table 12. Further evidence of seasonal differences of size may be had by comparing the weights of autumn and spring samples of transformed lampreys as given in table 11.

DURATION OF LARVAL LIFE

A primary objective of the extended operation of the Carp Lake River dam and inclined-screen trap was to determine the length of larval life of the sea lamprey. It was estimated by Applegate (1950) that this phase of the life history lasted 5 years during which 4 years of growth were followed by a 1-year "rest period." Presumably, the dam, after its final reconstruction in 1949, blocked all spawning-run adults from further migration upstream and prevented the addition of further year classes of larvae to the stock above the barrier. Had the block been perfect, the cessation of downstream runs would have permitted calculation of the maximum duration of larval life based on the last year when spawning in the river was known to have occurred.

No spawning above the dam is known to have taken place during the early years of operation. There is evidence, however, that after 1951 sea lampreys may have spawned in the watershed. Studies by Stauffer[1/] of the resident larval populations above the dam suggest sporadic recruitment.

1/ Stauffer, Thomas M., "An investigation of the continued capture of downstream-migrating recently transformed sea lampreys in the downstream trap of a weir on Carp Lake River, Emmet County, 1955." Michigan Institute for Fisheries Research, Report No. 1474 (May 4, 1956), Typewr., 16 p.

Stauffer sought to explain the continued downstream runs of recently transformed individuals on the basis of either a longer larval lifespan (as much as 8 or 9 years) or, the sporadic addition of further generations of larvae to the population following escapement of adults to the spawning grounds. The possibility of a longer larval life than originally postulated cannot be dismissed. On the other hand, there is little doubt now that some adults have escaped to the spawning grounds and that their spawning is largely responsible for the continued runs of recently transformed sea lampreys.

In view of these circumstances, the records in this report can in no way be utilized to determine accurately the maximum duration of the larval life of the sea lamprey.

DOWNSTREAM MOVEMENT OF FISHES

Nearly all fish captured in the downstream trap during the 10 years of operation were identified as to species. The numbers and kinds of these fishes, other than lampreys, that were taken are summarized by semimonthly periods in tables 14 through 23. Total lengths of fish in occasional samples of most species were measured to the nearest 0.1 inch. Where these data are available, they are included as footnotes to the tables. A list of the common and scientific names of all species taken in the trap catches is given in table 24.

ACKNOWLEDGMENTS

The Carp Lake River dam and inclined-screen trap were constructed by the Michigan Department of Conservation. The structure was operated by Mr. Albert N. Gabrielson, an employee of that Department. The cooperation of the Department of Conservation in permitting me to supervise the operation of the trap is gratefully acknowledged. I also wish to thank Mr. John H. Howell, Mr. Alan Rick, Mrs. Rose L. Hoffman, and Mrs. Janet K. Webster for assistance in measuring and weighing specimens and in tabulating the data.

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1950. Natural history of the sea lamprey (Petromyzon marinus) in Michigan. U. S. Fish and Wildlife Service, Special Scientific Report: Fisheries No. 55, 237 p.

Applegate, Vernon C., and Clifford L. Brynildson
1952. Downstream movement of recently transformed sea lampreys, Petromyzon marinus, in the Carp Lake River, Michigan. Transactions American Fisheries Society, vol. 81 (1951), p. 275-290.

Table 1. --Annual downstream movement of recently transformed and partly transformed sea lampreys, adult native lampreys, and larval lampreys in the Carp Lake River from the winter season of 1948-49 through that of 1957-58

Winter season	Adults				Larvae	
	Petromyzon marinus		Lampetra lamottei	Ichthyomyzon unicuspis	Petromyzon	Ichthyomyzon
	Transformed	Partly transformed				
1948-49 1/	7,969	44	197	0	492	7
1949-50 1/	16,235	10	115	16	8,403	49
1950-51 1/	15,103	13	118	6	12,647	2
1951-52	4,069	0	62	3	1,587	0
1952-53	6,861	27	2/ ...	2/ ...	2,838	0
1953-54	10,238		40	0	14,827	
1954-55	3,893		71	0	3,725	
1955-56	2,401		63	2	22,961	
1956-57	2,640		181	0	4,881	
1957-58	4,796		0	0	560	

1/ Data in part from Applegate and Brynildson, 1952.

2/ No record maintained.

Table 2. --Numbers of newly transformed sea lampreys migrating downstream in the Carp Lake River during the winter of 1951-52, and data on weather, water temperature and water level for the period

[Readings and observations made at 8:00 a. m. each day]

Date: 1951	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken
Oct. 1	50.5	12.50	Overcast	0
2	53.0	12.50	Overcast	0
3	55.5	12.50	Overcast	2
4	55.0	15.00	Overcast	2
5	54.0	16.00	Rain	102
6	51.5	15.00	Overcast	9
7	49.0	14.50	Overcast	0
8	47.0	15.00	Overcast	1
9	48.5	14.50	Overcast	4
10	47.5	14.50	Clear	0
11	47.0	14.25	Clear	3
12	48.5	14.00	Clear	0
13	49.0	13.75	Clear	0
14	50.0	13.50	Clear	0
15	52.5	13.00	Overcast	0
16	53.0	13.00	Overcast	0
17	52.0	14.00	Overcast	0
18	49.5	15.00	Rain	1
19	47.0	22.00	Overcast	31
20	46.5	20.50	Overcast	6
21	46.5	20.00	Rain	10
22	48.5	20.00	Overcast	6
23	47.5	20.00	Overcast	12
24	45.5	22.00	Rain	6
25	45.0	22.00	Clear	280
26	46.0	21.00	Clear	4
27	45.5	20.00	Overcast	14
28	43.5	18.00	Rain; snow	27
29	42.5	16.00	Overcast	27
30	43.5	15.00	Overcast	5
31	42.5	16.00	Overcast	17
Nov. 1	40.5	16.00	Overcast	27
2	38.5	16.00	Overcast	72
3	37.0	16.50	Snow	19
4	36.0	16.50	Clear	34
5	34.5	16.00	Overcast	16
6	34.5	15.00	Overcast	11
7	35.0	14.50	Clear	11
8	35.0	14.00	Overcast	7
9	35.5	14.00	Overcast	13
10	36.5	14.00	Clear	17
11	36.5	13.50	Overcast	59

Table 2. --Continued

Date: 1951	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken
Nov. 12	39.0	13.50	Overcast	27
13	40.5	16.00	Overcast	375
14	38.5	24.00	Rain	540
15	36.5	25.00	Rain	250
16	36.5	24.00	Overcast	175
17	35.5	23.00	Overcast	184
18	34.0	21.00	Overcast	64
19	33.0	19.00	Overcast	0
20	33.0	18.00	Clear	10
21	33.5	16.00	Overcast	9
22	33.5	15.00	Clear	11
23	33.5	15.00	Overcast	8
24	33.5	14.00	Overcast	4
25	33.0	14.00	Overcast	7
26	32.5	12.00	Snow	6
27	32.5	11.50	Overcast	12
28	33.0	12.00	Overcast	6
29	34.0	12.00	Clear	17
30	35.0	12.00	Clear	10
Dec. 1	36.0	12.00	Overcast	15
2	37.5	12.00	Overcast	7
3	39.0	11.50	Overcast	7
4	39.5	11.50	Overcast	24
5	38.0	11.50	Overcast	21
6	37.0	11.00	Overcast	4
7	37.5	11.50	Overcast	7
8	37.5	11.50	Overcast	4
9	36.5	11.00	Overcast	6
10	33.5	11.00	Overcast	3
11	32.0	10.75	Overcast	4
12	32.0	10.50	Overcast	4
13	32.0	10.50	Snow	6
14	32.0	10.50	Snow	6
15	32.0	10.25	Snow	2
16	32.0	10.00	Overcast	8
17	32.0	10.00	Clear	1
18	32.0	10.00	Snow	4
19	32.0	10.00	Clear	4
20	32.0	10.00	Snow	7
21	32.0	10.00	Snow	4
22	32.0	10.00	Snow	5
23	32.0	10.00	Snow	3
24	32.0	10.00	Overcast	2
25	32.0	10.00	Overcast	3
26	32.0	10.00	Overcast	6
27	32.0	10.00	Snow	3

Table 2. --Continued

Date: 1951-52	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken
Dec. 28	32.0	11.00	Snow; overcast	12
29	32.0	11.00	Overcast	14
30	32.0	11.50	Clear	12
31	32.0	11.50	Rain	3
Jan. 1	32.0	11.50	Overcast	3
2	32.0	12.00	Overcast	6
3	32.0	12.00	Overcast	4
4	32.0	12.00	Overcast	3
5	32.0	11.50	Overcast	2
6	32.0	11.50	Overcast	7
7	32.0	11.50	Overcast	0
8	32.0	11.50	Overcast	2
9	32.0	11.25	Overcast	1
10	32.0	11.25	Overcast	2
11	32.0	11.00	Overcast	2
12	32.0	11.00	Overcast	3
13	32.0	11.75	Overcast	1
14	32.0	11.00	Overcast	2
15	32.0	11.50	Overcast	4
16	32.0	11.50	Overcast	1
17	32.0	12.00	Rain	23
18	32.0	13.00	Snow	17
19	32.0	12.00	Overcast	7
20	32.0	12.00	Overcast	3
21	32.0	12.00	Overcast	3
22	32.0	12.00	Snow	1
23	32.0	11.50	Overcast	1
24	32.0	11.50	Overcast	12
25	32.0	11.50	Overcast	4
26	32.0	11.50	Overcast	14
27	32.0	11.50	Snow	7
28	32.0	11.00	Clear	7
29	32.0	11.00	Clear	3
30	32.0	11.00	Snow	0
31	32.0	11.00	Overcast	0
Feb. 1	32.0	11.50	Overcast	3
2	32.0	11.50	Overcast	5
3	32.5	11.50	Overcast	4
4	32.0	11.50	Overcast	5
5	32.0	12.00	Overcast	5
6	32.5	12.00	Overcast	2
7	32.0	12.00	Overcast	2
8	32.0	12.00	Overcast	4
9	32.0	12.00	Snow	1
10	32.0	13.50	Overcast	1
11	32.0	12.50	Clear	3

Table 2. --Continued

Date: 1952	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken
Feb. 12	32.5	12.00	Clear	3
13	32.5	10.00	Clear	2
14	32.5	9.50	Overcast	1
15	32.5	10.00	Overcast	3
16	32.5	11.00	Clear	2
17	32.5	11.00	Clear	3
18	32.5	11.00	Clear	0
19	32.5	10.00	Clear	2
20	32.0	9.50	Overcast	1
21	32.0	9.50	Snow	2
22	32.0	9.50	Overcast	0
23	32.5	9.50	Overcast	0
24	32.5	10.00	Overcast	1
25	32.5	8.00	Clear	2
26	32.5	8.50	Overcast	1
27	32.5	8.50	Clear	0
28	32.5	8.50	Overcast	0
29	32.5	9.00	Clear	2
Mar. 1	32.5	9.00	Clear	1
2	32.5	8.50	Clear	2
3	32.0	8.50	Snow	0
4	32.0	8.50	Snow	1
5	32.5	9.00	Overcast	1
6	32.5	9.00	Clear	0
7	32.0	9.00	Clear	0
8	32.5	9.00	Clear	1
9	32.5	9.50	Overcast	2
10	32.0	10.00	Rain	0
11	32.0	10.50	Overcast	0
12	33.0	10.50	Clear	2
13	32.5	11.00	Snow	3
14	32.5	11.50	Clear	1
15	32.0	11.00	Overcast	0
16	32.5	11.00	Overcast	1
17	32.5	10.50	Clear	2
18	32.5	11.00	Overcast	2
19	33.0	11.50	Overcast	14
20	34.5	11.50	Overcast	9
21	34.5	11.50	Overcast	150
22	34.0	10.50	Overcast	12
23	33.0	10.00	Snow	7
24	33.0	10.00	Snow flurries	12
25	33.5	11.00	Clear	7
26	34.0	11.50	Overcast	21
27	34.5	11.50	Overcast	14
28	34.0	11.00	Clear	16

Table 2. --Continued

Date: 1952	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken
Mar. 29	35.5	11.25	Overcast	7
30	35.0	12.00	Overcast	9
31	34.5	13.00	Overcast	25
April 1	34.5	18.50	Overcast	334
2	34.5	21.00	Overcast	121
3	34.5	22.00	Snow flurries	14
4	34.5	23.00	Overcast	44
5	34.0	24.00	Overcast	25
6	34.0	24.00	Overcast	14
7	35.5	23.00	Clear	22
8	36.0	24.00	Clear	24
9	35.5	25.00	Overcast	12
10	35.0	26.00	Snow flurries	16
11	34.5	24.00	Clear	6
12	36.0	23.00	Overcast	7
13	35.5	23.00	Rain; snow	4
14	35.0	26.00	Overcast	6
15	36.5	27.00	Clear	4
16	40.0	28.00	Clear	4
17	40.5	28.00	Overcast	17
18	41.5	28.00	Clear	27
19	45.0	29.00	Clear	4
20	46.0	28.00	Clear	4
21	46.0	27.00	Clear	4
22	47.0	27.00	Overcast	7
23	45.0	26.00	Clear	4
24	45.0	25.00	Clear	7
25	46.5	24.50	Clear	7
26	48.5	23.00	Partly cloudy	4
27	50.0	21.50	Clear	6
28	51.0	21.00	Clear	1
29	53.5	20.50	Clear	3
30	56.5	20.00	Clear	2
May 1	56.0	19.50	Clear	2
2	53.0	19.00	Clear	0
3	53.0	18.50	Clear	0
4	53.0	18.00	Overcast	1
5	...	18.00	Overcast	4
May 6 to June 30	...	...	...	0
Total taken				4,069

Table 3. --Numbers, average total length, and range of length of newly transformed sea lampreys migrating downstream in the Carp Lake River during the winter of 1952-53, and data on weather, water temperature, and water level for the period

[Readings and observations made at 8:00 a. m. each day. Only part of the sea lampreys were measured]

Date: 1952	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Sept. 1-17	...	...	...	0	...	...
18	59.5	5.00	Overcast	4	...	...
19	57.0	4.75	Overcast	0	...	...
20	57.5	4.75	Overcast	0	...	...
21	57.0	4.50	Overcast	0	...	...
22	54.5	4.50	Overcast	0	...	...
23	54.5	5.50	Overcast	0	...	...
24	53.5	5.00	Overcast	0	...	...
25	54.0	5.00	Clear	0	...	...
26	53.5	4.75	Clear	0	...	...
27	53.0	4.75	Clear	0	...	...
28	57.0	4.75	Clear	0	...	...
29	56.0	4.75	Overcast	0	...	...
30	54.0	4.50	Overcast	0	...	...
Oct. 1	57.0	4.50	Overcast	0	...	...
2	52.0	4.50	Overcast	0	...	...
3	48.5	4.50	Clear	0	...	...
4	50.5	4.50	Overcast	0	...	...
5	47.0	4.50	Overcast	2	...	...
6	43.0	4.50	Overcast	0	...	...
7	42.5	4.50	Overcast	0	...	...
8	45.0	4.50	Overcast	0	...	...
9	45.0	4.50	Overcast	0	...	...
10	43.0	4.25	Clear	1	...	...
11	44.0	4.25	Overcast	2	...	...
12	43.5	4.25	Clear	3	...	...
13	43.5	4.25	Overcast	0	...	...
14	44.5	4.25	Overcast	2	...	...
15	44.0	4.25	Overcast	1	...	...
16	41.0	4.25	Overcast	0	...	...
17	39.0	4.25	Overcast	18	...	...
18	39.0	4.00	Overcast	8	...	...
19	39.0	4.00	Overcast	7	...	...
20	38.0	4.00	Overcast	6	...	...
21	38.5	4.00	Overcast	3	...	...
22	40.5	4.00	Overcast	4	...	...
23	41.5	4.00	Clear	1	...	...
24	42.5	4.00	Clear	10	...	...
25	41.5	4.00	Clear	4	...	...
26	41.0	4.00	Clear	34	...	...
27	40.0	4.00	Overcast	3	...	...

Table 3. --Continued

Date: 1952	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Oct. 28	39.5	4.125	Overcast	3	...	...
29	39.0	4.125	Overcast	18	...	...
30	39.5	4.125	Overcast	1	...	...
31	40.5	4.00	Overcast	4	...	...
Nov. 1	41.5	4.00	Overcast	3	...	...
2	42.0	4.00	Overcast	6	...	...
3	40.0	4.25	Overcast	34	...	...
4	39.5	4.00	Overcast	0	...	...
5	39.5	4.00	Overcast	36	...	...
6	39.0	4.00	Overcast	11	...	...
7	37.5	4.25	Snow flurries	120	...	...
8	36.5	4.25	Overcast	6	...	...
9	35.5	4.25	Overcast	78	...	...
10	35.5	4.25	Overcast	14	...	...
11	36.0	4.00	Overcast	2	...	...
12	35.5	4.00	Overcast	69	...	...
13	35.5	4.00	Clear	43	...	...
14	37.0	4.00	Overcast	64	...	...
15	39.0	4.00	Overcast	49	...	...
16	39.0	4.00	Overcast	2	...	...
17	39.0	4.00	Overcast	4	...	...
18	40.0	4.50	Rain	4	...	...
19	41.5	4.50	Overcast	75	...	...
20	40.0	4.50	Overcast	48	...	...
21	38.5	4.50	Overcast	17	...	...
22	38.0	4.75	Rain	12	...	...
23	38.0	5.25	Overcast	735	...	...
24	38.0	5.75	Overcast	21	...	...
25	38.0	6.00	Rain	7	...	...
26	38.5	7.00	Rain	350	...	...
27	36.5	8.00	Snow	1,789	...	...
28	34.0	8.00	Overcast	52	...	...
29	33.0	8.00	Overcast	7	...	...
30	32.0	8.00	Overcast	4	...	...
Dec. 1	32.0	8.00	Overcast	9	...	...
2	32.0	8.00	Overcast	12	...	...
3	32.0	8.00	Overcast	2	...	...
4	32.0	8.00	Overcast	6	...	...
5	...	9.00	Overcast	22	...	...
6	...	9.00	Overcast	78	...	...
7	...	9.00	Overcast	23	...	...
8	...	9.00	Overcast	27	...	...
9	35.0	9.00	Clear	16	...	...
10	34.5	9.00	Overcast	27	...	...
11	33.5	9.25	Snow	14	...	...
12	32.5	9.25	Overcast	32	...	...

Table 3. --Continued

Date: 1952-53	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Dec. 13	32.0	9.50	Snow flurries	31	154.8	126-190
14	32.0	9.50	Snow	18	...	...
15	32.0	9.50	Overcast	15	148.9	134-169
16	32.5	9.50	Clear	8	...	...
17	32.5	9.25	Overcast	29	153.1	128-173
18	32.0	9.25	Overcast	12	...	...
19	32.0	9.25	Overcast	0	...	...
20	32.0	9.25	Snow flurries	2	142.5	137-148
21	32.0	9.50	Snow	4	...	...
22	32.0	9.50	Misty	5	149.0	140-160
23	33.0	9.50	Overcast	8	...	...
24	33.0	10.00	Overcast	56	150.0	127-174
25	33.0	10.00	Snow	12	...	...
26	32.0	10.25	Snow	30	148.4	130-180
27[1/]	32.0	10.25	Overcast	...	...	...
28[1/]	32.0	10.25	Overcast	...	...	...
29[1/]	32.0	10.00	Overcast	...	...	...
30	32.0	11.00	Overcast	5	146.4	130-172
31	32.0	11.00	Overcast	3	...	...
Jan. 1	32.0	11.00	Overcast	0	...	...
2	32.0	11.00	Snow	21	149.1	125-171
3	32.0	11.00	Overcast	5	...	...
4	32.0	11.00	Snow	1	(179.0)	...
5	32.0	10.50	Snow flurries	2	...	...
6	32.0	10.00	Overcast	0	...	...
7	32.0	10.00	Clear	6	147.5	140-156
8	32.0	10.00	Overcast	8	...	...
9	32.0	10.00	Overcast	11	137.9	128-152
10	32.0	9.75	Overcast	3	...	...
11	32.0	9.75	Overcast	6	148.0	134-159
12	32.0	9.75	Overcast	4	...	...
13	32.0	9.75	Overcast	12	151.2	134-185
14	32.0	9.75	Overcast	4	...	...
15	32.0	9.50	Overcast	10	150.3	128-174
16	32.0	10.00	Clear	187	...	...
17	32.0	10.25	Overcast	140	153.8	123-174
18	32.0	10.00	Snow	23	...	...
19	32.0	10.50	Overcast	26	146.6	123-167
20	32.0	10.75	Clear	34	...	...
21	32.0	10.50	Overcast	15	147.3	128-160
22	32.0	10.50	Overcast	7	...	...
23	32.0	10.50	Snow	13	142.0	122-160
24	32.0	10.25	Overcast	6	...	...

Table 3 --Continued

Date: 1953	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Jan. 25	32.0	10.00	Overcast	4	141.0	127-168
26	32.0	10.00	Overcast	2	...	...
27	32.0	10.00	Overcast	2	133.0	126-140
28	32.0	10.00	Overcast	3	...	...
29	32.0	10.00	Overcast	1	(159.0)	...
30	32.0	9.50	Overcast	0	...	...
31	32.0	9.50	Snow	0	...	...
Feb. 1	32.0	9.50	Overcast	0	...	...
2	32.0	9.50	Snow	0	...	...
3	32.0	9.50	Clear	4	160.[illegible]	138-178
4	32.0	9.50	Overcast	3	...	...
5	32.0	9.50	Overcast	6	152.6	139-160
6	32.0	10.00	Rain	1	...	...
7	32.0	10.50	Overcast	63	150.4	130-181
8	32.0	11.00	Overcast	41	...	...
9	32.0	11.00	Overcast	2	147.0	138-156
10	32.0	11.00	Overcast	3	...	...
11	32.0	11.25	Overcast	2	...	...
12	32.0	11.00	Overcast	10	145.0	123-176
13	32.0	10.50	Overcast	14	...	...
14	32.0	10.50	Overcast	32	151.9	127-175
15	32.0	10.50	Overcast	12	...	...
16	32.0	10.50	Overcast	2	151.0	140-162
17	32.0	10.25	Overcast	7	...	...
18	32.0	10.00	Overcast	3	136.3	128-146
19	32.0	10.25	Partly overcast	3	...	...
20	32.5	10.50	Rain	8	160.6	144-190
21	32.25	10.50	Stormy; snow	7	...	...
22[1/]	32.0	11.00	Overcast	...	...	...
23[1/]	32.0	11.50	Overcast	...	...	...
24	32.5	12.00	Overcast	3	155.7	148-170
25	33.0	12.00	Clear	6	...	...
26	34.5	12.25	Overcast	11	151.0	135-167
27	34.0	12.00	Overcast	12	...	...
28	33.5	12.00	Overcast	10	149.4	128-168
Mar. 1	32.5	12.00	Clear	4	...	...
2	32.0	12.00	Overcast	1	(147.0)	...
3	32.5	12.00	Overcast	2	...	...
4	32.5	11.50	Overcast	2	152.0	141-163
5	32.5	11.50	Overcast	1	...	...
6	32.5	11.50	Overcast	1	...	...
7	32.5	11.50	Clear	4	141.5	135-146
8	32.5	11.50	Clear	4	...	...
9	32.5	11.50	Overcast	5	138.6	136-143

Table 3. --Continued

Date: 1953	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Mar. 10	33.0	11.00	Clear	7	157.9	140-188
11	35.0	11.00	Overcast	7	...	...
12	35.25	11.50	Overcast	209	146.3	125-175
13	35.0	12.25	Overcast	160	...	...
14	34.0	12.50	Overcast	165	...	...
15	34.0	12.50	Rain	13	...	...
16	34.0	12.25	Overcast	50	...	...
17	35.0	12.25	Clear	27	...	...
18	35.5	12.50	Clear	453	...	...
19	34.0	19.00	Overcast	535	...	...
20	34.0	20.00	Clear	16	145.2	125-165
21	34.5	20.00	Overcast	11	...	...
22	35.5	21.00	Overcast	0	...	...
23	35.5	25.00	Overcast	0	...	...
24[2/]	35.0	30.00	Overcast	...	...	...
25[2/]	35.0	28.00	Snow flurries	...	...	...
26[2/]	36.0	26.00	Clear	...	...	...
27	36.5	24.00	Overcast	7	...	...
28	37.0	24.00	Snow flurries	1	...	...
29	37.5	24.00	Overcast	3	145.0	138-158
30	38.0	23.50	Clear	0	...	...
31	38.5	23.00	Clear	0	...	...
April 1	40.5	23.00	Clear	0	...	...
2	40.0	22.00	Clear	4	151.7	139-161
3	39.5	22.00	Overcast	1	(157.0)	...
4	40.0	22.00	Overcast	0	...	...
5	39.5	23.00	Overcast	1	(147.0)	...
6	39.0	23.25	Overcast	1	...	...
7	40.0	23.00	Clear	13	158.8	152-172
8	41.75	22.00	Clear	4	...	...
9	42.0	21.00	Overcast	2	172.0	155-189
10	40.25	23.00	Rain	1	...	...
11	39.75	24.00	Overcast	2	...	...
12	40.0	22.50	Clear	2	184.0	165-203
13	39.25	22.00	Snow flurries	0	...	...
14	39.25	21.50	Clear	1	(221.0)	...
15	41.0	22.00	Rain	2	...	...
16	40.0	23.00	Rain	1	(142.0)	...
17	38.5	24.50	Snow flurries	2	...	...
18	38.5	20.00	Overcast	2	174.0	163-185
19	39.0	20.00	Overcast	4	...	...
20	38.25	19.00	Snow flurries	2	181.0	181-181
21	39.0	17.00	Clear	0	...	...
22	42.5	15.50	Rain showers	0	...	...

Table 3. --Continued

Date: 1953	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
April 23	44.0	15.00	Clear	0	...	...
24	44.0	14.50	Clear	0	...	...
25	44.0	14.50	Rain	0	...	...
26	41.5	17.00	Snow	1	(146.0)	...
27	39.25	21.00	Rain; snow	1	...	...
April 28 to June 19 4/	...	...	...	0	...	...
Total or average				6,861	3/148.8	121-221

1/ Trap inoperative during December 27-29 and February 22-23 due to severe ice formation on the screens.

2/ Trap inoperative during March 24-26 due to extreme flood conditions.

3/ Based on 1,074 specimens.

4/ Trap dismantled on June 19, 1953.

Table 4. --Numbers, average total length, and range of length of newly transformed sea lampreys migrating downstream in the Carp Lake River during the winter of 1953-54, and data on weather, water temperature, and water level for the period

[Readings and observations made at 8:00 a. m. each day. Only part of the sea lampreys were measured]

Date: 1953	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Sept. 8-30	...	...	...	0	...	...
Oct. 1	52.0	4.0	Clear	0	...	...
2	53.0	4.3	Partly overcast	2	...	...
3	55.0	4.8	Clear	0	...	...
4	54.5	5.0	Clear	1	...	...
5	52.0	5.0	Overcast	0	...	...
6	48.0	5.5	Clear	9	...	...
7	44.0	4.8	Clear	7	...	...
8	43.0	4.3	Clear	1	...	...
9	47.0	4.0	Overcast	1	...	...
10	48.0	5.0	Overcast	0	...	...
11	50.0	4.5	Overcast	1	...	...
12	52.0	4.5	Overcast	2	...	...
13	49.0	4.0	Clear	10	...	...
14	48.0	3.8	Overcast	5	...	...
15	50.0	3.5	Clear	5	...	...
16	50.0	3.5	Clear	0	...	...
17	49.0	3.3	Clear	3	...	...
18	50.0	3.3	Partly overcast	2	...	...
19	54.0	3.0	Clear	3	...	...
20	54.0	3.0	Clear	0	...	...
21	54.0	3.0	Clear	0	...	...
22	54.0	3.0	Clear	0	...	...
23	54.0	3.3	Clear	2	...	...
24	54.0	3.0	Overcast	0	...	...
25	48.0	3.0	Clear	2	...	...
26	46.0	3.3	Rain	13	...	...
27	45.0	3.3	Overcast	30	...	...
28	43.0	3.5	Overcast	47	...	...
29	42.5	3.5	Clear	77	...	...
30	42.0	3.5	Clear	2	...	...
31	43.0	3.5	Overcast	29	...	...
Nov. 1	43.0	3.5	Overcast	266	...	...
2	43.0	3.5	Clear	4	...	...
3	45.0	3.5	Overcast	5	...	...
4	42.0	3.5	Partly overcast	118	...	...
5	38.0	3.5	Partly overcast	4	...	...
6	35.5	3.0	Clear	50	...	...
7	35.0	3.0	Overcast	57	...	...
8	33.0	3.0	Overcast	42	...	...
9	36.0	2.8	Overcast	5	...	...
10	38.0	2.8	Overcast	5	...	...

Table 4. --Continued

Date: 1953	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Nov. 11	39.0	3.0	Overcast	7	...	...
12	39.0	3.0	Overcast	122	...	...
13	39.0	3.0	Overcast	18	...	...
14	40.0	3.0	Partly overcast	4	...	...
15	39.0	3.0	Clear	12	...	...
16	39.0	3.0	Clear	19	...	...
17	40.0	2.8	Clear	26	...	...
18	42.0	2.8	Overcast	20	...	...
19	46.0	2.8	Overcast	7	...	...
20	48.0	3.0	Clear	6	...	...
21	49.0	3.0	Overcast	8	...	...
22	48.0	3.0	Overcast; rain	3	...	...
23	43.0	5.8	Overcast	419	...	...
24	40.5	6.0	Overcast	544	...	...
25	41.0	6.0	Overcast	3	...	...
26	38.5	6.0	Snow flurries	2	...	...
27	36.0	5.8	Overcast	5	...	...
28	35.5	5.8	Overcast	250	...	...
29	35.0	5.5	Overcast	15	...	...
30	34.5	5.5	Overcast	2	...	...
Dec. 1	35.0	5.5	Overcast	2	...	...
2	35.0	5.5	Overcast; rain	4	...	...
3	36.0	6.0	Overcast	37	...	...
4	40.0	6.5	Overcast; rain	163	...	...
5	39.5	6.5	Overcast	2,145	...	...
6	37.0	8.0	Overcast; rain	23	...	...
7	37.0	7.5	Overcast	215	...	...
8	37.0	7.5	Overcast	41	...	...
9	36.5	7.5	Overcast	57	...	...
10	35.0	7.5	Overcast	39	...	...
11	34.5	7.5	Overcast	24	...	...
12	35.0	7.0	Overcast	18	...	...
13	35.0	7.0	Overcast	4	...	...
14	33.5	7.0	Overcast	6	...	...
15	33.0	7.0	Overcast	2	...	...
16	32.0	6.0	Overcast	14	...	...
17	32.0	6.0	Partly overcast	10	...	...
18	32.0	6.0	Snow	5	...	...
19	32.0	6.0	Overcast	3	...	...
20	33.0	6.0	Overcast	3	...	...
21	34.5	6.0	Overcast	6	...	...
22	34.0	6.0	Overcast	2	...	...
23	32.5	5.8	Overcast	3	...	...
24	32.0	5.5	Overcast	12	...	...
25	33.0	6.0	Overcast	13	...	...

Table 4. --Continued

Date: 1953-54	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Dec. 26	32.5	6.0	Snow	17	...	...
27	32.0	6.0	Overcast	8	...	...
28	32.0	6.3	Overcast	5	...	...
29	32.0	6.0	Snow	3	...	...
30	32.0	5.5	Overcast	7	148.6	131-170
31	32.0	5.5	Snow	4	...	...
Jan. 1	32.0	5.8	Overcast	23	149.0	126-165
2	32.0	5.5	Overcast	3	...	...
3	32.0	5.5	Clear	8	144.3	125-158
4	32.0	5.5	Overcast	3	...	...
5	32.0	5.5	Overcast	10	149.7	131-170
6	32.0	5.5	Overcast	4	...	...
7	32.0	5.5	Clear	5	143.0	127-166
8	32.0	5.8	Snow	3	...	...
9	32.0	5.8	Snow	6	145.0	133-166
10	32.0	5.5	Overcast	5	...	...
11	32.0	5.5	Overcast	2	139.0	138-140
12	32.0	5.0	Clear	12	...	...
13	32.0	5.5	Snow flurries	17	141.4	121-166
14	32.0	5.3	Snow	6	...	...
15	32.0	5.5	Overcast	5	145.0	135-157
16	32.0	5.0	Overcast	3	147.7	142-151
17	32.0	5.0	Partly overcast	4	...	...
18	32.0	5.0	Overcast	3	141.0	132-149
19	32.0	6.0	Overcast	7	...	...
20	32.0	6.0	Snow	8	144.0	130-149
21	32.0	6.0	Overcast	12	...	...
22	32.0	6.0	Partly overcast	1	(139.0)	...
23	32.0	6.0	Overcast	11	...	...
24	32.0	6.0	Overcast	6	148.0	135-176
25	32.0	6.3	Overcast	6	...	...
26	32.0	6.3	Overcast	6	146.8	137-154
27	32.0	6.0	Overcast	8	...	...
28	32.0	5.8	Overcast	4	142.5	132-149
29	32.0	5.8	Snow	8	...	...
30	32.0	6.0	Snow	3	155.3	139-172
31	32.0	6.0	Overcast	4	...	...
Feb. 1	32.0	6.5	Overcast	3	144.3	141-149
2	32.0	6.3	Overcast	4	...	...
3	32.0	6.3	Overcast	5	143.0	133-155
4	32.0	6.3	Partly overcast	3	...	...
5	32.0	6.0	Overcast	1	...	...
6	32.0	5.5	Partly overcast	3	150.7	144-157
7	32.0	5.8	Clear	15	140.7	128-154
8	32.0	5.5	Overcast	6	...	...

Table 4. --Continued

Date: 1954	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Feb. 9	32.0	5.5	Overcast	3	136.3	128-141
10	32.0	5.5	Overcast	7	145.4	142-153
11	32.0	5.5	Partly overcast	3	...	...
12	32.0	5.3	Partly overcast	1	...	...
13	32.0	5.3	Overcast	1	(143.0)	...
14	32.0	5.3	Partly overcast	0	...	...
15	32.5	5.5	Overcast	0	...	...
16	32.5	6.0	Overcast	0	...	...
17	32.0	6.0	Clear	0	...	...
18	32.0	6.0	Clear	2	145.0	145-145
19	32.0	6.0	Clear	1	...	...
20	32.5	6.0	Partly overcast	0	...	...
21	33.0	12.0	Rain squalls	29	151.4	131-177
22	33.0	11.0	Overcast	105	...	...
23	33.0	10.0	Snow flurries	23	155.8	133-182
24	32.5	10.0	Overcast	23	...	...
25	32.0	10.0	Overcast	40	151.0	132-173
26	33.0	10.0	Clear	35	144.4	119-169
27	32.5	10.0	Snow	57	150.7	131-172
28	32.0	10.0	Snow	28	151.7	131-171
Mar. 1	32.5	10.0	Overcast	9	...	...
2	32.0	9.0	Snow	18	151.0	130-174
3	32.0	9.0	Clear	21	147.9	129-171
4	32.0	9.0	Overcast	11	142.9	133-162
5	32.0	8.5	Overcast	21	143.2	122-163
6	32.0	9.0	Clear	6	...	...
7	32.0	8.5	Overcast	1	...	...
8	32.0	8.5	Clear	8	153.8	132-172
9	32.5	8.5	Snow	4	...	...
10	32.5	8.0	Clear	2	...	...
11	32.5	8.5	Clear	5	149.4	132-160
12	32.5	8.0	Partly overcast	7	147.0	131-161
13	32.0	8.0	Overcast; snow	7	137.8	123-163
14	32.0	8.0	Snow	3	144.7	133-164
15	32.0	8.0	Clear	13	141.4	123-160
16	32.0	8.0	Clear	8	147.6	131-159
17	32.0	8.0	Partly overcast	9	...	...
18	32.5	8.0	Partly overcast	9	...	...
19	33.0	8.0	Overcast	6	147.3	137-155
20	33.0	9.0	Partly overcast	15	157.6	136-175
21	33.0	9.0	Clear	12	...	...
22	33.0	10.0	Partly overcast	28	...	...
23	33.0	10.0	Partly overcast	6	148.3	142-158
24	34.5	10.0	Overcast	19	...	...
25	34.5	11.0	Rain	12	151.2	131-171

Table 4. --Continued

Date: 1954	Mean water temperature (°F)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters) Average	Range
Mar. 26	34. 5	11. 5	Overcast	2, 245	2/144. 8	112-187
27	35. 0	12. 0	Clear	591	3/152. 3	126-179
28	35. 0	11. 0	Overcast	17	151. 2	139-171
29	34. 5	11. 0	Overcast	12	...	...
30	33. 0	10. 0	Overcast	4	164. 5	159-176
31	33. 5	11. 0	Overcast	3	151. 0	139-163
April 1	35. 0	11. 0	Overcast	2	164. 0	153-175
2	33. 5	10. 5	Overcast	7	...	...
3	34. 0	10. 0	Partly overcast	3	...	...
4	34. 0	10. 0	Clear	4	156. 0	147-166
5	34. 0	10. 0	Clear	2	187. 0	175-200
6	37. 0	12. 0	Rain	29	...	...
7	40. 0	15. 0	Partly overcast	1, 133	4/148. 8	120-197
8	38. 0	19. 0	Overcast	9	...	...
9	37. 0	17. 0	Partly overcast	22	150. 6	134-161
10	35. 5	16. 5	Partly overcast	3	...	...
11	37. 5	16. 5	Partly overcast	20	145. 4	132-167
12	37. 0	15. 5	Overcast	4	141. 0	133-149
13	40. 0	15. 5	Partly overcast	7	...	...
14	40. 0	15. 5	Partly overcast	10	155. 7	124-195
15	41. 0	15. 5	Overcast	11	150. 1	125-186
16	42. 0	19. 0	Overcast	15	149. 7	134-161
17	39. 0	18. 0	Clear	2	156. 5	145-168
18	39. 0	18. 0	Clear	4	158. 0	136-195
19	41. 0	15. 0	Partly overcast	4	165. 3	137-182
20	44. 0	15. 0	Partly overcast	0	...	...
21	44. 0	16. 0	Rain	2	192. 5	191-194
22	44. 0	21. 0	Partly overcast	3	...	...
23	44. 0	19. 0	Clear	1	...	...
24	43. 0	18. 0	Overcast	1	(166)	...
25	44. 0	19. 0	Overcast	1	...	...
26	45. 5	18. 0	Overcast; rain	2	181. 5	178-185
27 1/	45. 0	36. 0	Heavy rain	...	...	...
28 1/	44. 0	36. 0	Clear	...	...	...
29 1/	45. 0	30. 0	Partly overcast	...	...	...
30 1/	46. 0	28. 0	Overcast	...	...	...
May 1	47. 0	26. 0	Partly overcast	0	...	...
2	49. 0	24. 0	Partly overcast	0	...	...
3	46. 0	24. 0	Overcast	0	...	...
4	44. 0	22. 0	Snow flurries	0	...	...
5	43. 0	21. 0	Overcast	3	...	...
6	42. 0	19. 5	Overcast	0	...	...
7	41. 0	18. 5	Snow	0	...	...
8	42. 0	22. 0	Overcast	0	...	...
9	42. 0	21. 5	Partly overcast	0	...	...

Table 4. --Continued

Date: 1954	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
May 10	44.0	21.0	Overcast	0	...	...
11	44.0	20.0	Overcast	0	...	...
12	46.0	18.0	Clear	0	...	...
13	47.0	17.0	Clear	0	...	...
14	49.0	16.0	Clear	1	(242)	...
May 15 to June 30	...	...	...	0	...	...
Total or average				10,238	5/147.6	112-242

1/ Trap inoperative during April 27-30 due to extreme flood conditions.

2/ Based on 1,755 specimens.

3/ Based on 287 specimens.

4/ Based on 656 specimens.

5/ Based on 3,332 specimens.

Table 5 --Numbers, average total length, and range of length of newly transformed sea lampreys migrating downstream in the Carp Lake River during the winter of 1954-55, and data on weather, water temperature, and water level for the period

[Readings and observations made at 8:00 a m each day Only part of the sea lampreys were measured]

Date: 1954	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Sept. 14 to Oct. 9	...	...	...	0	...	...
Oct. 10	50.0	10.0	Overcast	1	(143)	...
11	52.0	10.0	Overcast	0	...	...
12	53.0	9.0	Overcast	0	...	...
13	54.0	9.0	Clear	0	...	...
14	53.0	8.5	Overcast	0	...	...
15	53.0	9.5	Overcast	12	136.3	120-154
16	51.0	12.0	Rain	0	...	...
17	46.0	15.0	Partly overcast	3	133.0	131-135
18	45.0	14.0	Overcast	11	...	...
19	43.0	13.0	Clear	2	(141)	...
20	43.0	12.0	Clear	4	137.0	127-145
21	44.0	11.5	Clear	5	136.6	135-139
22	44.0	11.0	Clear	4	135.5	128-145
23	44.0	11.0	Clear	0	...	...
24	47.0	10.5	Clear	0	...	...
25	46.0	10.5	Overcast	1	...	...
26	45.0	10.5	Overcast	4	137.5	133-140
27	47.0	11.0	Overcast	3	154.0	148-162
28	44.0	10.5	Overcast	4	...	...
29	43.0	10.5	Overcast	2	...	...
30	42.0	11.0	Overcast	11	...	...
31	39.0	11.0	Snow	27	3/142.9	138-152
Nov. 1	38.5	11.0	Overcast	48	4/145.2	135-158
2	38.5	11.0	Overcast	16	5/140.4	117-155
3	38.0	10.5	Overcast	76	6/146.1	125-157
4	38.0	10.5	Overcast	41	7/145.8	138-154
5	39.0	10.5	Overcast	7	142.0	123-152
6	38.5	10.0	Overcast	6	147.7	138-162
7	39.0	10.0	Overcast	12	...	...
8	42.0	10.0	Clear	7	141.9	130-154
9	40.0	10.0	Overcast	6	...	...
10	38.5	10.0	Clear	11	142.1	128-155
11	38.5	10.0	Overcast	14	...	...
12	39.0	10.0	Partly overcast	35	143.0	129-180
13	38.0	9.7	Overcast	56	...	...
14	38.5	10.0	Overcast	15	146.1	127-165
15	37.0	10.0	Overcast	201	144.4	123-179
16	38.0	10.0	Overcast	25	...	...
17	40.0	10.0	Overcast	7	152.7	139-163
18	41.5	10.0	Overcast	33	...	...

Table 5. --Continued

Date: 1954-55	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Nov. 19	43.0	9.7	Overcast	23	146.0	127-164
20	40.0	9.5	Overcast	14	...	...
21	39.0	9.5	Overcast	16	156.3	147-168
22	37.5	9.5	Overcast	23	...	...
23	39.0	9.5	Overcast	59	156.8	137-172
24	38.0	9.5	Overcast	73	...	...
25	37.0	10.0	Overcast	211	151.2	123-176
26	37.0	10.0	Overcast	165	...	...
27	37.0	10.0	Overcast	29	155.7	127-182
28	37.0	10.3	Overcast	68	...	...
29	37.0	10.0	Overcast	42	151.7	128-192
30	37.0	10.0	Overcast	14	...	...
Dec. 1	36.5	10.0	Snow flurries	17	154.6	139-170
2	35.0	10.0	Overcast	18	...	...
3	33.5	10.0	Overcast	22	144.2	121-160
4	32.5	10.2	Overcast	4	...	...
5	32.0	10.0	Overcast	3	...	...
6	32.0	9.5	Overcast	18	...	...
7	32.0	9.0	Overcast	66	149.5	116-180
8	32.0	9.0	Overcast	14	...	...
9	32.0	8.5	Overcast	14	149.8	132-172
10	32.0	9.0	Overcast	12	...	...
11	32.0	9.0	Overcast	14	144.1	132-156
12	32.0	9.0	Snow	12	...	...
13	32.0	8.5	Overcast	9	148.7	129-169
14	32.0	8.5	Overcast	22	150.1	119-203
15	32.0	8.5	Overcast	9	148.2	130-165
16	32.0	8.2	Clear	9	...	...
17	32.0	8.5	Snow	11	157.3	146-171
18	32.0	8.5	Overcast	27	...	...
19	32.0	8.5	Overcast	8	149.2	134-162
20	32.0	8.5	Overcast	7	...	...
21	32.0	8.0	Clear	15	146.6	132-168
22	32.0	8.0	Overcast	9	...	...
23	32.0	8.0	Snow flurries	13	149.4	127-166
24	32.0	8.0	Overcast	14	...	...
25	32.0	8.0	Overcast	6	152.5	136-169
26	32.0	8.0	Overcast	7	...	...
27	32.0	8.0	Overcast	14	153.5	136-172
28	32.0	8.0	Overcast	7	...	...
29	32.0	8.0	Overcast	6	159.8	152-177
30	32.0	8.0	Clear	4	...	...
31	32.0	8.0	Overcast	6	146.0	127-162
Jan. 1	32.0	8.0	Overcast	5	...	...
2	32.0	8.0	Overcast	6	152.2	139-165

Table 5. --Continued

Date: 1955	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Jan. 3	32.0	7.5	Overcast	5	...	...
4	32.0	7.5	Clear	2	176.0	168-184
5	32 0	8.0	Overcast	1	...	...
6	32.0	8.0	Overcast	1	(145)	...
7	32.0	7.5	Overcast	0	...	...
8	32.0	8.0	Overcast	0	...	...
9	32.0	8.0	Snow	3	149.7	145-155
10	32.0	8.0	Overcast	2	...	...
11	32.0	8.0	Clear	2	149.5	138-161
12	32.0	8.5	Snow	7	167.0	148-202
13	32.0	8.5	Overcast	2	...	...
14	32.0	8.5	Overcast	3	147.0	134-161
15	32.0	8.5	Snow	2	...	...
16	32.0	8.5	Snow	8	144.8	135-164
17	32.0	8.5	Overcast	3	...	...
18	32.0	8.5	Overcast	7	140.6	126-160
19	32.0	7.5	Clear	2	...	...
20	32.0	7.0	Clear	0	...	...
21	32.0	7.0	Overcast	3	155.3	140-171
22	32.0	7.0	Overcast	2	...	...
23	32.0	7.0	Overcast	0	...	...
24	32.0	7.0	Overcast	2	147.0	141-153
25	32.0	7.0	Overcast	3	...	...
26	32.0	7.0	Snow flurries	7	153.7	145-162
27	32.0	7.0	Clear	0	...	...
28	32.0	7.0	Overcast	3	152.7	145-160
29	32.0	7.0	Clear	1	...	...
30	32.0	7.0	Partly overcast	2	150.5	145-156
31	32.0	7.0	Snow flurries	3	...	...
Feb. 1	32.0	7.0	Overcast	2	137.0	135-139
2	32.0	7.0	Clear	0	...	...
3	32.0	7.0	Clear	0	...	...
4	32.0	7.0	Overcast	0	...	...
5	32.0	7.0	Snow flurries	0	...	...
6	32.0	7.0	Overcast	0	...	...
7	32.0	7.0	Overcast	0	...	...
8	32.0	7.0	Snow flurries	1	(145)	...
9	32.0	7.0	Overcast	0	...	...
10	32.0	7.0	Overcast	0	...	...
11	32.0	7.0	Overcast	2	146.5	133-160
12	32.0	7.0	Overcast	0	...	...
13	32.0	7.0	Overcast	0	...	...
14	32.0	7.0	Overcast	1	(156)	...
15	32.0	7.0	Overcast	1	...	...
16	32.0	7.5	Overcast	2	142.5	133-152

Table 5.--Continued

Date: 1955	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Feb. 17	32.0	7.5	Clear	0	...	...
18	32.0	7.5	Clear	0	...	...
19	32.0	7.5	Overcast	2	148.0	147-149
20	32.0	7.5	Overcast	0	...	...
21	32.0	8.0	Overcast	2	152.0	149-155
22	32.0	8.0	Snow	5	162.4	141-179
23	32.0	8.0	Clear	2	...	...
24	32.0	8.0	Overcast	2	140.5	135-146
25	32.0	8.0	Overcast	0	...	...
26	32.0	8.2	Overcast	7	146.7	132-154
27	32.0	8.5	Overcast	0	...	...
28	32.0	8.5	Overcast	0	...	...
Mar. 1	32.0	8.5	Overcast	2	155.5	149-162
2[1/]	...	...	...	0	...	...
3[1/]	...	...	...	0	...	...
4	32.0	8.0	Overcast	1	...	...
5	32.0	8.0	Overcast	0	...	...
6	32.0	8.0	Overcast	1	(138)	...
7	32.0	8.0	Overcast	1	(170)	...
8	32.0	8.0	Overcast	2	...	...
9	32.0	8.5	Overcast	1	(132)	...
10	32.0	9.0	Overcast	1	...	...
11	32.5	10.0	Overcast	29	156.1	131-171
12	32.0	10.0	Overcast	25	154.9	135-175
13	32.0	10.0	Overcast	18	153.7	131-178
14	32.0	10.0	Overcast	18	...	...
15	33.0	10.0	Overcast	93	[8/]155.8	130-175
16	33.0	11.0	Overcast	347	[9/]155.2	126-188
17	32.0	10.0	Overcast	48	...	...
18	32.0	10.5	Overcast	28	150.9	130-177
19	33.0	10.0	Snow flurries	18	...	...
20	35.0	10.2	Clear	21	154.4	139-164
21	34.0	10.5	Snow flurries	57	...	...
22	34.0	10.5	Overcast	41	...	...
23	34.0	10.5	Overcast	49	...	...
24	34.0	10.7	Overcast	182	151.0	124-191
25	33.0	11.0	Clear	25	...	...
26	32.0	11.0	Overcast	40	153.4	135-178
27	32.0	11.0	Snow flurries	21	...	...
28	32.0	10.5	Clear	26	151.2	128-174
29	32.5	10.5	Clear	11	...	...
30	33.5	10.5	Clear	46	150.3	127-164
31	34.5	10.5	Clear	22	...	...
April 1	34.5	12.0	Clear	226	149.0	116-192
2	35.0	15.0	Clear	248	...	...

Table 5. --Continued

Date: 1955	Mean water temperature (°F)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
April 3	35.5	18.0	Clear	152	156.9	128-177
4	35.5	19.0	Clear	21	...	...
5	35.0	20.0	Rain	13	159.4	147-176
6	35.0	22.5	Overcast	21	...	...
7	35.0	22.0	Clear	2	168.0	164-172
8	35.0	20.5	Overcast	14	...	...
9	39.0	20.5	Clear	15	150.2	123-171
10	43.0	21.5	Clear	17	...	...
11	43.0	21.0	Clear	5	159.6	151-165
12	43.0	21.0	Overcast	2	...	...
13	44.0	21.5	Rain	0	...	...
14	45.0	26.0	Overcast	0	...	...
15 2/	44.0	28.0	Overcast	0	...	...
16 2/	44.0	27.0	Overcast	0	...	...
17	45.0	26.0	Clear	1	(174)	...
18	43.0	25.0	Overcast	1	(180)	...
19	43.0	26.0	Rain	0	...	...
20	42.0	26.0	Overcast	0	...	...
21	43.5	26.0	Clear	0	...	...
22	44.0	25.5	Overcast	1	(185)	...
April 23 to June 30	...	...	...	0	...	...
Total or average				3,893	10/ 151.4	116-203

1/ Trap operating but unattended.

2/ Trap inoperative due to extreme flood conditions.

3/ Based on 8 specimens.

4/ Based on 6 specimens.

5/ Based on 11 specimens.

6/ Based on 9 specimens.

7/ Based on 6 specimens.

8/ Based on 25 specimens.

9/ Based on 232 specimens.

10/ Based on 2,175 specimens.

Table 6. --Numbers, average total length, and range of length of newly transformed sea lampreys migrating downstream in the Carp Lake River during the winter of 1955-56, and data on weather, water temperature, and water level for the period

[Readings and observations made at 8:00 a.m. each day. Only part of the sea lampreys were measured]

Date: 1955	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Sept. 7-18	...	...	...	0	...	...
19	68.0	2.0	Overcast	2	...	...
20	67.0	2.0	Clear	0	...	...
21	59.0	2.0	Clear	0	...	...
22	55.0	2.0	Overcast	0	...	...
23	55.0	2.0	Overcast	0	...	...
24	56.0	2.0	Overcast	0	...	...
25	56.0	2.0	Clear	0	...	...
26	54.0	2.0	Overcast	0	...	...
27	50.0	2.0	Overcast	0	...	...
28	50.0	2.0	Clear	0	...	...
29	55.0	2.0	Clear	0	...	...
30	54.0	2.0	Overcast	0	...	...
Oct. 1	52.0	2.0	Clear	0	...	...
2	50.0	2.0	Clear	0	...	...
3	51.0	2.0	Clear	1	...	...
4	48.0	2.0	Overcast	0	...	...
5	51.0	2.0	Rain	0	...	...
6	53.0	2.1	Overcast	0	...	...
7	53.0	2.2	Overcast	0	...	...
8	54.0	2.2	Clear	0	...	...
9	54.0	2.2	Clear	0	...	...
10	56.4	2.1	Clear	0	...	...
11	58.0	2.1	Clear	0	...	...
12	59.0	2.1	Overcast	0	...	...
13	58.0	2.1	Overcast	1	(140)	...
14	53.0	2.1	Overcast	0	...	...
15	52.0	2.1	Overcast	0	...	...
16	49.0	2.1	Rain	0	...	...
17	50.0	2.2	Clear	0	...	...
18	49.0	2.2	Overcast	0	...	...
19	50.0	2.1	Overcast	0	...	...
20	50.0	2.1	Overcast	0	...	...
21	50.0	2.1	Overcast	0	...	...
22	45.0	2.1	Rain	0	...	...
23	45.0	2.1	Overcast	0	...	...
24	47.0	3.0	Overcast	0	...	...
25	44.0	3.0	Overcast	2	129.0	123-135
26	42.0	3.0	Overcast	0	...	...
27	42.0	3.0	Clear	2	131.5	130-133
28	45.0	3.0	Clear	0	...	...
29	49.0	3.0	Rain	0	...	...

Table 6. --Continued

Date: 1955	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Oct. 30	49.0	3.0	Overcast	1	(138)	...
31	46.0	3.0	Overcast	1	(131)	...
Nov. 1	46.0	3.0	Overcast	1	(125)	...
2	44.0	3.0	Clear	13	135.9	119-161
3	42.0	3.0	Snow flurries	2	130.0	123-137
4	38.0	3.0	Snow flurries	58	131.2	111-153
5	37.0	3.0	Overcast	1	(136)	...
6	37.5	3.2	Overcast	0	...	...
7	39.0	3.2	Overcast	1	(152)	...
8	37.0	3.2	Overcast	33	2/ 140.6	121-167
9	38.0	3.2	Overcast	0	...	...
10	39.0	3.5	Snow	1	(142)	...
11	38.5	3.5	Rain	55	135.4	119-167
12	39.0	3.5	Overcast	0	...	...
13	38.5	3.5	Overcast	0	...	...
14	38.5	3.5	Overcast	0	...	...
15	37.5	3.5	Overcast	0	...	...
16	38.0	3.7	Rain	4	128.5	124-140
17	34.5	3.7	Overcast	98	132.7	113-164
18	33.0	4.0	Overcast	125	3/ 139.4	110-164
19	32.5	4.0	Overcast	59	143.8	121-163
20	32.0	4.0	Overcast	0	...	...
21	32.5	4.0	Overcast	0	...	...
22	32.5	4.0	Overcast	0	...	...
23	32.5	4.0	Rain	0	...	...
24	32.5	4.0	Overcast	156	...	...
25	32.0	4.0	Overcast	62	149.1	125-174
26	32.0	4.0	Overcast	1	(148)	...
27	32.0	4.0	Overcast	1	(130)	...
28	32.0	4.0	Snow	2	143.5	143-144
29	32.0	4.0	Overcast	3	144.0	140-148
30	32.0	4.0	Overcast	4	142.0	130-160
Dec. 1	32.0	4.0	Overcast	0	...	...
2	32.0	4.0	Overcast	1	(181)	...
3	32.0	4.0	Overcast	3	157.0	147-171
4	32.0	4.0	Overcast	3	144.0	142-146
5	32.0	4.0	Snow	5	156.0	149-164
6	32.0	4.0	Snow	1	(135)	...
7	32.0	4.0	Overcast	3	137.7	126-145
8	32.0	4.0	Overcast	2	133.5	123-144
9	32.0	4.0	Overcast	5	4/ 153.0	129-172
10	32.0	4.0	Overcast	8	139.5	117-160
11	32.0	4.2	Overcast	15	142.6	122-162
12	32.0	4.2	Overcast	3	155.0	125-185
13	32.0	4.2	Overcast	3	151.0	143-164

Table 6. --Continued

Date: 1955-56	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Dec. 14	32.0	4.2	Snow	6	153.0	129-173
15	32.0	4.0	Overcast	2	150.0	148-152
16	32.0	4.0	Snow	19	145.5	122-175
17	32.0	4.0	Overcast	7	5/142.3	125-159
18	32.0	4.0	Overcast	8	142.5	130-162
19	32.0	4.0	Overcast	1	(142)	...
20	32.0	4.0	Overcast	8	142.6	125-156
21	32.0	4.0	Overcast	14	138.0	124-158
22	32.0	4.0	Snow	2	154.5	142-167
23	32.0	4.0	Overcast	8	146.8	130-157
24	32.0	4.0	Overcast	7	149.6	124-176
25	32.0	4.0	Overcast	0	...	...
26	32.0	4.0	Snow	1	...	...
27	32.0	4.0	Clear	0	(136)	...
28	32.0	4.0	Overcast	0	...	...
29	32.0	4.0	Overcast	0	...	...
30	32.0	4.0	Overcast	0	...	...
31	32.0	4.0	Overcast	0	...	...
Jan. 1	32.0	4.0	Overcast	0	...	...
2	32.0	4.0	Overcast	0	...	...
3	32.0	4.0	Overcast	1	(132)	...
4	32.0	4.0	Overcast	3	152.7	146-165
5	32.0	4.0	Overcast	1	(123)	...
6	32.0	4.0	Overcast	2	155.0	145-165
7	32.0	4.0	Clear	1	(166)	...
8	32.0	4.0	Clear	0	...	...
9	32.0	4.0	Snow	0	...	...
10	32.0	4.0	Overcast	0	...	...
11	32.0	4.0	Overcast	0	...	...
12	32.0	4.0	Clear	1	(139)	...
13	32.0	4.0	Overcast	1	(157)	...
14	32.0	4.0	Clear	7	131.1	121-136
15	32.0	4.0	Overcast	2	138.5	129-148
16	32.0	4.0	Clear	1	(160)	...
17	32.0	4.0	Clear	1	(150)	...
18	32.0	4.0	Overcast	5	134.6	125-145
19	32.0	4.0	Snow	2	133.5	132-135
20	32.0	4.0	Snow	0	...	...
21	32.0	4.0	Snow	0	...	...
22	32.0	4.0	Snow	1	(144)	...
23	32.0	4.0	Overcast	1	(189)	...
24	32.0	4.0	Overcast	2	127.5	121-134
25	32.0	4.0	Overcast	0	...	...
26	32.0	4.0	Overcast	1	(138)	...

Table 6. --Continued

Date: 1956	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Jan. 27	32.0	4.0	Overcast	4	128.8	111-144
28	32.0	4.0	Overcast	0	...	...
29	32.0	4.0	Overcast	0	...	...
30	32.0	4.0	Overcast	0	...	...
31	32.0	4.0	Overcast	0	...	...
Feb. 1	32.0	4.0	Overcast	2	150.0	131-169
2	32.0	4.0	Overcast	0	...	...
3	32.0	4.0	Clear	0	...	...
4	32.0	4.0	Overcast	2	143.5	142-145
5	32.0	4.0	Overcast	4	144.5	127-166
6	32.0	4.0	Overcast	7	136.0	125-148
7	32.0	4.0	Overcast	2	155.0	145-165
8	32.0	4.0	Overcast	1	(125)	...
9	32.0	4.0	Clear	3	145.3	140-149
10	32.0	4.0	Overcast	0	...	...
11	32.0	4.0	Overcast	0	...	...
12	32.0	4.0	Overcast	0	...	...
13	32.0	4.0	Overcast	0	...	...
14	32.0	4.0	Overcast	1	(135)	...
15	32.0	4.0	Overcast	3	159.6	157-163
16	32.0	4.0	Overcast	2	149.5	149-150
17	32.0	4.0	Snow	0	...	...
18	32.0	4.0	Overcast	3	138.6	124-154
19	32.0	4.0	Overcast	0	...	...
20	32.0	4.0	Overcast	0	...	...
21	32.0	4.0	Overcast	1	(159)	...
22	32.0	4.0	Overcast	0	...	...
23	32.0	4.0	Clear	2	130.0	122-138
24	32.0	4.0	Sleet	0	...	...
25	32.0	4.0	Overcast	0	...	...
26	32.0	4.0	Overcast	0	...	...
27	32.0	4.0	Clear	0	...	...
28	32.0	4.0	Overcast	0	...	...
29	32.0	4.0	Clear	0	...	...
Mar. 1	32.0	4.0	Overcast	1	(147)	...
2	32.0	4.0	Overcast	4	132.0	120-144
3	32.0	4.0	Overcast	0	...	...
4	32.0	4.0	Clear	0	...	...
5	32.0	4.0	Overcast	0	...	...
6	32.0	4.0	Overcast	1	...	...
7	32.0	4.0	Stormy	0	...	...
8	32.0	4.0	Overcast	3	141.6	129-151
9	32.0	4.0	Overcast	5	133.0	120-150
10	32.0	5.0	Overcast	13	136.1	117-164

Table 6. --Continued

Date: 1956	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Mar. 11	32.0	5.0	Overcast	0	...	...
12	32.0	5.0	Overcast	3	136.3	133-141
13	32.0	5.5	Overcast	66	6/137.5	120-166
14	32.0	5.5	Overcast	22	139.4	127-156
15	32.0	5.5	Clear	0	...	...
16	32.0	5.5	Partly overcast	0	...	...
17	32.0	5.5	Clear	0	...	...
18	32.0	5.5	Clear	0	...	...
19	32.0	5.5	Clear	27	7/138.0	124-165
20	32.0	5.5	Clear	4	150.8	140-155
21	32.0	6.0	Overcast	1	(147)	...
22	32.0	6.2	Partly overcast	0	...	...
23	32.0	6.2	Overcast	4	139.0	131-147
24	32.0	6.2	Clear	5	140.2	118-166
25	32.0	6.2	Overcast	0	...	...
26	32.0	6.2	Clear	1	(124)	...
27	32.0	6.5	Clear	9	156.1	133-193
28	32.0	6.5	Overcast	8	150.6	132-163
29	32.0	6.5	Overcast	2	150.0	146-154
30	32.0	6.7	Snow flurries	1	(140)	...
31	32.0	6.7	Clear	11	149.4	136-167
Apr. 1	32.0	6.7	Clear	35	8/145.9	126-173
2	32.0	7.0	Overcast	11	9/159.1	144-173
3	32.0	7.2	Overcast	10	151.7	126-173
4	32.5	14.0	Rain	35	10/140.6	123-182
5 1/	32.5	14.0	Overcast	8	11/153.3	138-160
6	33.0	14.0	Clear	119	12/150.5	116-185
7	33.5	19.0	Overcast	789	13/148.4	111-183
8	33.5	19.0	Overcast	6	137.7	120-160
9	33.0	24.0	Clear	160	...	...
10	34.0	23.0	Clear	36	155.4	136-172
11	36.5	21.0	Clear	27	151.4	126-172
12	38.5	20.5	Overcast	22	151.7	128-174
13	37.0	19.5	Clear	1	...	...
14	39.0	19.0	Snow	11	158.4	143-171
15	40.0	18.0	Overcast	11	162.8	136-190
16	40.0	17.0	Overcast	4	156.0	153-164
17	39.0	17.0	Snow	3	152.6	141-173
18	38.0	16.7	Snow	1	(148)	...
19	36.0	16.5	Clear	3	14/155.0	125-178
20	39.0	16.2	Clear	1	(169)	...
21	40.0	16.0	Clear	1	(156)	...
22	43.0	15.5	Overcast	1	(186)	...
23	39.0	15.0	Clear	1	(158)	...
24	40.0	14.7	Clear	0	...	...

Table 6.--Continued

Date: 1956	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Apr. 25	42.5	14.5	Overcast	1	(174)	...
26	43.0	14.5	Overcast	4	164.7	149-184
27	43.0	14.5	Rain	1	(176)	...
28	41.0	14.5	Overcast	1	(137)	...
29	39.0	14.2	Overcast	3	173.0	149-192
30	38.0	15.0	Clear	0	...	...
May 1	40.0	15.5	Overcast	3	151.6	142-160
2	44.0	15.5	Partly overcast	1	...	...
3	42.0	15.0	Overcast	0	...	...
4	46.0	15.0	Partly overcast	1	...	...
5	47.0	14.5	Clear	0	...	...
6	50.0	14.5	Overcast	0	...	...
7	46.0	14.5	Clear	1	...	...
8	46.0	14.2	Clear	0	...	...
9	47.0	14.0	Rain	0	...	...
10	49.0	14.0	Partly overcast	0	...	...
11	51.0	14.0	Overcast	0	...	...
12	52.0	14.0	Partly overcast	1	(143)	...
13	56.0	14.0	Overcast	2	...	...
May 14 to June 30	...	...	...	0	...	...
Total or average				2,401	15/ 144.4	110-193

1/ Trap partially inoperative due to damming action of floe ice at river mouth.

2/ Based on 34 specimens.

3/ Based on 116 specimens.

4/ Based on 6 specimens.

5/ Based on 8 specimens.

6/ Based on 64 specimens.

7/ Based on 25 specimens.

8/ Based on 36 specimens.

9/ Based on 12 specimens.

10/ Based on 36 specimens.

11/ Based on 7 specimens.

12/ Based on 121 specimens.

13/ Based on 196 specimens.

14/ Based on 4 specimens.

15/ Based on 1,477 specimens.

Table 7. --Numbers, average total length, and range of length of newly transformed sea lampreys migrating downstream in the Carp Lake River during the winter of 1956-57, and data on weather, water temperature, and water level for the period

[Readings and observations made at 8:00 a. m. each day. Only part of the sea lampreys were measured]

Date: 1956	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Oct. 1-11	...	...	...	0	...	...
12	45.0	3.5	Overcast	1	(181)	...
13	48.0	3.5	Clear	0	...	...
14	52.0	3.5	Overcast	1	(123)	...
15	56.0	3.7	Overcast	0	...	...
16	55.0	3.5	Clear	0	...	...
17	56.0	3.5	Clear	0	...	...
18	55.0	4.0	Clear	0	...	...
19	51.0	4.0	Clear	0	...	...
20	48.0	4.0	Clear	0	...	...
21	46.0	4.0	Clear	1	(136)	...
22	48.0	4.0	Clear	1	(143)	...
23	48.0	4.0	Overcast	0	...	...
24	46.0	4.0	Overcast	2	133.5	133-134
25	44.0	4.0	Overcast	8	...	...
26	44.0	3.5	Overcast	5	...	...
27	46.0	4.0	Clear	4	...	...
28	45.0	4.0	Clear	14	3/143.6	133-158
29	46.0	3.7	Clear	5	140.2	130-155
30	46.0	4.0	Overcast	7	143.7	135-158
31	49.0	4.0	Partly overcast	2	130.5	130-131
Nov. 1	50.0	4.0	Overcast	1	(131)	...
2	52.0	4.0	Overcast	1	(136)	...
3	54.0	3.7	Overcast	2	134.5	134-135
4	55.0	3.7	Overcast	1	(138)	...
5	54.5	3.7	Overcast	2	141.5	137-146
6	53.0	3.7	Overcast	3	147.0	136-157
7	50.0	4.0	Overcast	4	...	...
8	45.0	3.7	Snow flurries	8	140.9	123-175
9	40.0	4.0	Overcast	5	...	...
10	38.0	3.7	Overcast	2	128.0	123-133
11	37.0	4.0	Overcast	13	...	...
12	39.0	4.0	Overcast	4	146.3	127-163
13	38.0	4.0	Overcast	9	...	...
14	36.5	4.0	Clear	5	147.0	133-162
15	37.5	4.5	Overcast	14	...	...
16	38.0	6.2	Snow flurries	735	...	...
17	36.0	6.0	Overcast	125	...	...
18	33.0	6.0	Overcast	3	140.7	129-155
19	33.0	6.0	Overcast	6	...	...
20	36.0	5.5	Overcast	15	143.7	122-166

Table 7. --Continued

Date: 1956-57	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Nov. 21	35.0	6.0	Overcast	9	...	...
22	33.0	6.2	Overcast	227	4/140.6	126-172
23	32.0	6.0	Overcast	123	...	...
24	32.0	6.0	Overcast	32	5/150.3	128-178
25	32.0	6.5	Overcast	11	...	...
26	32.0	6.5	Overcast	5	148.2	136-156
27	32.0	6.5	Overcast	9	...	...
28	32.0	6.2	Overcast	15	...	...
29	32.0	6.5	Clear	9	...	...
30	32.0	7.0	Overcast	12	150.8	132-173
Dec. 1	32.0	7.0	Overcast	8	...	...
2	32.0	7.0	Overcast	7	156.3	144-179
3	32.0	7.0	Overcast	6	...	...
4	32.0	7.0	Overcast	11	6/156.9	138-173
5	32.0	7.0	Rain	16	...	...
6	32.0	7.5	Overcast	17	7/155.1	144-168
7	32.5	7.5	Overcast	3	...	...
8	32.0	7.5	Overcast	3	151.7	144-159
9	32.0	7.5	Overcast	2	...	...
10	32.0	7.5	Overcast	3	144.0	134-149
11	32.0	7.5	Overcast	2	...	...
12	32.0	7.5	Overcast	0	...	...
13	32.0	7.5	Snow	2	...	...
14	32.0	7.7	Overcast	4	152.5	144-161
15	32.0	7.7	Overcast	1	...	...
16	32.0	8.0	Overcast	2	137.0	129-145
17	32.0	7.5	Overcast	1	...	...
18	32.0	6.5	Clear	0	...	...
19	32.0	6.5	Overcast	0	...	...
20	32.0	6.5	Overcast	2	155.5	154-157
21	32.0	6.5	Overcast	3	...	...
22	32.0	6.7	Overcast	3	149.7	138-157
23	32.0	6.7	Overcast	14	...	...
24	32.0	7.0	Overcast	6	160.3	146-180
25	32.0	6.5	Overcast	6	...	...
26	32.0	6.5	Overcast	9	8/154.3	141-161
27	32.0	7.0	Overcast	4	...	...
28	32.0	7.0	Overcast	7	...	...
29	32.0	6.5	Partly cloudy	0	...	...
30	32.0	6.2	Overcast	0	...	...
31	32.0	6.5	Overcast	0	...	...
Jan. 1	32.0	6.5	Overcast	0	...	...
2	32.0	6.0	Overcast	0	...	...
3	32.0	6.0	Heavy snow	0	...	...

Table 7. --Continued

Date: 1957	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Jan. 4	32.0	6.0	Overcast	1	(153)	...
5	32.0	6.0	Overcast	1	...	...
6	32.0	6.0	Overcast	3	9/150.5	150-151
7	32.0	6.0	Overcast	0	...	...
8	32.0	6.0	Overcast	0	...	...
9	32.0	6.0	Overcast	0	...	...
10	32.0	6.0	Overcast	1	(197)	...
11	32.0	6.0	Overcast	0	...	...
12	32.0	6.0	Overcast	0	...	...
13	32.0	6.0	Clear	0	...	...
14	32.0	6.0	Overcast	0	...	...
15	32.0	6.0	Snow flurries	0	...	...
16	32.0	5.7	Overcast	0	...	...
17	32.0	6.0	Snow flurries	0	...	...
18	32.0	5.7	Clear	0	...	...
19	32.0	5.7	Clear	0	...	...
20	32.0	5.7	Overcast	1	(144)	...
21	32.0	5.7	Overcast	0	...	...
22	32.0	6.0	Overcast	0	...	...
23	32.0	5.7	Clear	3	151.3	146-162
24	32.0	5.7	Overcast	0	...	...
25	32.0	5.7	Overcast	0	...	...
26	32.0	5.7	Overcast	0	...	...
27	32.0	5.5	Overcast	0	...	...
28	32.0	5.7	Overcast	0	...	...
29	32.0	5.7	Snow flurries	0	...	...
30	32.0	5.7	Light snow	0	...	...
31	32.0	5.7	Overcast	0	...	...
Feb. 1	32.0	5.5	Partly overcast	0	...	...
2	32.0	5.5	Overcast	0	...	...
3	32.0	5.5	Overcast	0	...	...
4	32.0	5.5	Clear	0	...	...
5	32.0	5.5	Overcast	1	(148)	...
6	32.0	5.5	Clear	0	...	...
7	32.0	5.5	Partly overcast	0	...	...
8	32.0	5.5	Clear	0	...	...
9	32.0	5.5	Overcast	1	(165)	...
10	32.0	5.5	Clear	0	...	...
11	32.0	5.2	Clear	0	...	...
12	32.0	5.5	Snow flurries	0	...	...
13	32.0	5.5	Snow flurries	0	...	...
14	32.0	5.5	Overcast	0	...	...
15	32.0	5.5	Overcast	0	...	...
16	32.0	5.5	Snow flurries	0	...	...

Table 7. --Continued

Date: 1957	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Feb. 17	32.0	5.5	Overcast	0	...	...
18	32.0	5.5	Overcast	0	...	...
19	32.0	5.5	Clear	2	157.0	148-166
20	32.0	5.5	Overcast	2	153.5	147-160
21	32.0	5.5	Overcast	2	...	...
22	32.0	5.5	Overcast	0	...	...
23	32.0	5.5	Clear	0	...	...
24	32.0	5.5	Overcast	3	154.0	148-161
25	32.0	7.0	Overcast	2	143.5	127-160
26	32.0	8.0	Overcast	21	[10]/146.9	121-166
27	32.0	8.0	Clear	24	148.8	133-182
28	32.0	6.5	Clear	2	158.0	156-160
Mar. 1	32.0	6.5	Overcast	0	...	...
2	32.0	6.0	Clear	0	...	...
3	32.0	5.5	Clear	3	152.0	139-164
4	32.0	5.5	Clear	0	...	...
5	32.0	5.5	Clear	0	...	...
6	32.0	5.5	Light snow	1	(152)	...
7	32.0	5.5	Clear	0	...	...
8	32.0	5.5	Clear	0	...	...
9	32.0	5.5	Overcast	0	...	...
10	32.0	5.5	Clear	0	...	...
11	32.0	5.5	Overcast	0	...	...
12	32.0	5.5	Overcast	1	...	...
13	32.0	6.0	Clear	14	...	...
14	32.0	6.2	Clear	2	...	...
15	32.0	7.0	Overcast	40	148.9	125-176
16	32.0	8.0	Overcast	125	[11]/153.7	126-186
17	32.0	7.5	Overcast	16	[12]/153.1	138-168
18	32.0	7.5	Clear	4	...	...
19	32.0	8.0	Overcast	10	...	...
20	33.0	8.0	Clear	23	...	...
21	33.5	8.0	Clear	45	...	...
22	34.0	9.0	Overcast	53	...	...
23	35.0	8.5	Clear	62	...	...
24	35.0	9.0	Clear	68	[13]/152.2	131-171
25	35.5	9.0	Clear	42	150.2	132-179
26	34.5	9.0	Clear	11	...	...
27	35.0	9.0	Clear	10	143.2	132-156
28	36.0	10.0	Partly cloudy	13	...	...
29	37.0	10.0	Partly cloudy	22	...	...
30	38.0	10.0	Clear	28	147.0	127-176
31	37.0	10.0	Partly cloudy	35	...	...
Apr. 1	38.0	12.0	Overcast	27	[14]/143.7	119-174

Table 7. --Continued

Date: 1957	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Apr. 2	36.0	10.0	Clear	94	...	...
3	36.0	10.5	Clear	12	...	...
4	35.0	10.5	Overcast	4	...	...
5	35.0	10.5	Overcast	3	163.3	156-173
6	35.0	11.0	Snow flurries	5	...	...
7	34.0	10.5	Clear	3	150.0	144-157
8	35.0	11.0	Overcast	37	...	...
9	34.0	11.0	Clear	6	141.0	128-156
10	34.0	11.0	Clear	2	...	...
11	36.0	11.0	Overcast	3	151.7	142-164
12	37.5	11.2	Overcast	3	144.0	132-159
13	35.0	10.5	Overcast	3	...	...
14	35.0	10.5	Clear	4	140.5	128-148
15	37.0	10.5	Clear	15	...	...
16	40.0	10.5	Overcast	36	15/ 142.8	123-168
17	38.0	10.7	Overcast	3	...	...
18	41.0	12.0	Partly overcast	41	140.2	116-173
19	41.0	14.5	Clear	36	16/ 135.7	123-157
20 1/	43.0	28.0	Overcast	0	...	...
21 2/	45.0	28.0	Overcast	0	...	...
22	46.0	22.0	Clear	1	(156)	...
Apr. 23 to July 12	...	...	...	0	...	...
Total or average				2,640	17/ 144.4	144-197

1/ Specimens lost due to flooding of screens.

2/ Trap inoperative due to heavy rains.

3/ Based on 13 specimens.

4/ Based on 25 specimens.

5/ Based on 24 specimens.

6/ Based on 10 specimens.

7/ Based on 16 specimens.

8/ Based on 8 specimens.

9/ Based on 2 specimens.

10/ Based on 22 specimens.

11/ Based on 46 specimens.

12/ Based on 17 specimens.

13/ Based on 50 specimens.

14/ Based on 28 specimens.

15/ Based on 37 specimens.

16/ Based on 13 specimens.

17/ Based on 1,078 specimens.

Table 8. --Numbers, average total length, and range of length of newly transformed sea lampreys migrating downstream in the Carp Lake River during the winter of 1957-58, and data on weather, water temperature, and water level for the period

[Readings and observations made at 8:00 a. m. each day. Only part of the sea lampreys were measured]

Date: 1957	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Oct. 2-9	...	...	...	0	...	...
10	46.0	4.0	Overcast	1	(124.0)	...
11	44.0	4.0	Overcast	1	(131.0)	...
12	44.0	4.0	Overcast	1	(147.0)	...
13	44.0	4.0	Partly overcast	6	136.5	134-139
14	44.0	4.0	Clear	5	143.4	131-152
15	44.0	4.0	Overcast	4	...	...
16	50.0	4.2	Rain	30	1/142.7	134-156
17	50.0	4.5	Rain	51	2/137.9	124-152
18	46.0	4.5	Overcast	31	...	...
19	46.0	4.5	Clear	13	...	...
20	44.0	4.0	Clear	22	...	...
21	44.0	4.0	Overcast	18	3/139.8	118-157
22	46.0	4.2	Overcast	14	4/136.2	114-152
23	50.0	5.2	Rain	69	...	...
24	44.0	6.0	Overcast	479	5/142.1	123-174
25	42.0	5.5	Overcast	165	6/139.2	126-158
26	42.0	5.0	Overcast	58	7/137.3	119-158
27	42.0	5.0	Overcast	6	...	...
28	38.0	5.0	Clear	34	8/143.1	111-164
29	38.0	5.0	Overcast	35	142.8	121-168
30	40.0	5.0	Overcast	30	...	...
31	44.0	5.2	Overcast	152	9/137.4	120-162
Nov. 1	44.0	5.0	Overcast	4	137.8	126-146
2	44.0	4.7	Overcast	20	...	...
3	44.0	4.7	Overcast	4	141.5	139-148
4	44.0	4.7	Overcast	10	...	...
5	44.0	4.7	Overcast	15	144.9	135-167
6	42.0	4.7	Overcast	16	...	...
7	41.0	4.7	Overcast	5	144.4	138-154
8	42.0	5.5	Rain	17	...	...
9	38.0	7.0	Rain; snow	1,250	10/141.4	116-158
10	36.0	8.0	Overcast	259	11/143.2	126-173
11	35.0	8.2	Partly overcast	42	144.8	94-182
12	36.0	9.0	Clear	111	12/143.2	118-168
13	36.0	9.0	Overcast	6	146.8	135-162
14	38.0	9.5	Rain	0	...	...
15	38.0	12.0	Rain	1,175	...	...
16	40.0	12.5	Overcast	52	13/155.6	128-177
17	40.0	12.5	Overcast	2	164.5	162-167
18	38.0	12.5	Overcast	0	...	...
19	38.0	17.0	Overcast	174	14/147.7	123-180

Table 8. --Continued

Date: 1957-58	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Nov. 20	36.0	16.5	Snow flurries	125	...	...
21	36.0	16.0	Overcast	6	162.8	149-174
22	36.0	14.0	Overcast	4	153.8	144-163
23	35.0	14.0	Snow flurries	0	...	...
24	34.0	15.0	Overcast	3	...	...
25	32.0	15.5	Partly cloudy	0	...	...
26	32.0	15.5	Partly cloudy	0	...	...
27	32.0	14.5	Overcast	0	...	...
28	33.0	14.5	Overcast	0	...	...
29	33.0	14.0	Overcast	0	...	...
30	33.0	14.5	Overcast	0	...	...
Dec. 1	32.0	15.0	Snow flurries	0	...	...
2	32.0	15.0	Overcast	0	...	...
3	32.0	15.0	Overcast	0	...	...
4	32.0	14.5	Overcast	0	...	...
5	32.0	14.5	Overcast	0	...	...
6	33.0	14.0	Overcast	0	...	...
7	33.0	13.7	Overcast	0	...	...
8	32.0	13.5	Partly cloudy	0	...	...
9	32.0	13.5	Overcast	0	...	...
10	32.0	13.5	Snow flurries	0	...	...
11	32.0	13.5	Partly cloudy	0	...	...
12	32.0	13.5	Partly cloudy	12	15/ 147.3	118-173
13	32.0	13.2	Overcast	0	...	...
14	32.0	13.0	Overcast	0	...	...
15	32.0	13.0	Overcast	0	...	...
16	32.0	13.0	Overcast	4	159.8	146-172
17	32.0	13.0	Overcast	4	...	...
18	32.0	13.0	Overcast	0	...	...
19	32.0	13.0	Overcast	0	...	...
20	34.0	13.5	Rain	17	154.4	129-169
21	34.0	13.7	Partly cloudy	4	...	...
22	34.0	13.5	Partly cloudy	0	...	...
23	34.0	13.5	Partly cloudy	0	...	...
24	33.0	13.5	Overcast	4	...	...
25	32.0	13.5	Overcast	0	...	...
26	32.0	13.5	Overcast	0	...	...
27	32.0	13.0	Clear	0	...	...
28	33.0	13.0	Overcast	0	...	...
29	32.0	13.0	Overcast	0	...	...
30	32.0	13.0	Partly cloudy	0	...	...
31	32.0	13.0	Overcast	0	...	...
Jan. 1	32.0	13.0	Partly cloudy	0	...	...
2	32.0	12.7	Partly cloudy	0	...	...

Table 8. --Continued

Date: 1958	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Jan. 3	32.0	12.5	Partly cloudy	0	...	...
4	32.0	12.5	Partly cloudy	0	...	...
5	32.0	12.5	Clear	0	...	...
6	32.0	12.5	Snow	0	...	...
7	32.0	12.5	Clear	0	...	...
8	32.0	12.5	Clear	0	...	...
9	32.0	12.5	Clear	0	...	...
10	32.0	12.2	Overcast	0	...	...
11	32.0	12.0	Partly cloudy	0	...	...
12	32.0	12.0	Partly cloudy	0	...	...
13	32.0	12.0	Overcast	5	137.6	124-152
14	32.0	11.7	Overcast	1	(138.0)	...
15	32.0	11.7	Overcast	1	...	...
16	32.0	11.7	Partly cloudy	0	...	...
17	32.0	11.7	Partly cloudy	0	...	...
18	32.0	11.7	Clear	0	...	...
19	32.0	11.5	Overcast	0	...	...
20	32.0	11.5	Overcast	0	...	...
21	32.0	11.5	Partly cloudy	0	...	...
22	32.0	11.2	Overcast	0	...	...
23	32.0	11.2	Overcast	0	...	...
24	32.0	11.2	Overcast	0	...	...
25	32.0	11.2	Snow	0	...	...
26	32.0	11.2	Overcast	0	...	...
27	32.0	11.0	Overcast	0	...	...
28	32.0	11.0	Overcast	2	157.0	149-165
29	32.0	11.0	Overcast	0	...	...
30	32.0	11.0	Overcast	0	...	...
31	32.0	11.0	Overcast	0	...	...
Feb. 1	32.0	11.0	Overcast	0	...	...
2	32.0	11.0	Overcast	0	...	...
3	32.0	11.0	Clear	0	...	...
4	32.0	11.0	Clear	0	...	...
5	32.0	11.0	Clear	0	...	...
6	32.0	11.0	Overcast	0	...	...
7	32.0	10.7	Overcast	0	...	...
8	32.0	10.7	Clear	0	...	...
9	32.0	10.7	Partly cloudy	0	...	...
10	32.0	10.5	Overcast	0	...	...
11	32.0	10.7	Clear	0	...	...
12	32.0	10.5	Clear	0	...	...
13	32.0	10.7	Clear	0	...	...
14	32.0	10.7	Overcast	0	...	...
15	32.0	10.5	Overcast	0	...	...

Table 8. --Continued

Date: 1958	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Feb. 16	32.0	10.5	Clear	0	...	...
17	32.0	10.5	Overcast	0	...	...
18	32.0	10.5	Overcast	0	...	...
19	32.0	10.5	Overcast	0	...	...
20	32.0	10.2	Clear	0	...	...
21	32.0	10.5	Overcast	0	...	...
22	32.0	10.2	Overcast	0	...	...
23	32.0	10.2	Clear	0	...	...
24	32.0	10.0	Clear	0	...	...
25	32.0	10.0	Clear	1	(155.0)	...
26	32.0	10.0	Partly cloudy	0	...	...
27	32.0	10.0	Overcast	1	...	...
28	32.0	10.0	Overcast	0	...	...
Mar. 1	32.0	10.0	Overcast	0	...	...
2	32.0	10.0	Overcast	0	...	...
3	32.0	10.0	Overcast	7	148.0	128-162
4	32.0	10.2	Overcast	0	...	...
5	32.0	10.2	Overcast	0	...	...
6	32.0	10.2	Overcast	3	152.7	144-163
7	33.0	10.2	Clear	3	154.7	148-164
8	32.0	10.2	Clear	0	...	...
9	33.0	10.7	Partly cloudy	0	...	...
10	33.0	10.2	Clear	0	...	...
11	33.0	10.2	Overcast	3	131.0	120-143
12	34.0	11.0	Overcast	2	...	...
13	34.0	11.0	Overcast	2	136.5	134-139
14	33.0	11.0	Overcast	3	156.7	140-166
15	35.0	11.0	Overcast	0	...	...
16	34.0	11.2	Overcast	4	145.5	128-162
17	34.0	11.2	Overcast	2	155.0	147-163
18	35.0	11.2	Overcast	0	...	...
19	35.0	11.2	Overcast	6	154.5	136-174
20	34.0	11.2	Overcast	2	...	...
21	35.0	11.2	Partly cloudy	1	(130.0)	...
22	34.0	11.2	Clear	3	...	...
23	34.0	11.0	Clear	0	...	...
24	33.0	11.0	Clear	0	...	...
25	33.0	11.0	Clear	1	(156.0)	...
26	34.0	11.0	Overcast	3	[16]/155.0	149-161
27	34.0	11.0	Clear	2	...	...
28	34.0	11.2	Clear	2	158.0	155-161
29	34.0	11.0	Clear	2	...	...
30	34.0	11.2	Clear	3	159.7	154-170
31	35.0	11.5	Clear	17	[17]/143.4	123-160
Apr. 1	36.0	12.0	Clear	5	146.0	138-167

Table 8. --Continued

Date: 1958	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
Apr. 2	37.0	12.5	Clear	4	142.3	124-156
3	37.0	13.0	Clear	4	...	...
4	38.0	13.0	Overcast	6	143.0	131-156
5	37.0	14.0	Partly cloudy	8	...	...
6	38.0	16.0	Snow	16	18/141.1	127-159
7	34.0	16.5	Clear	6	...	...
8	36.0	16.0	Overcast	26	19/145.6	127-172
9	34.0	14.0	Overcast	4	...	...
10	34.0	14.0	Clear	5	142.0	129-153
11	35.0	14.0	Clear	1	...	...
12	35.0	14.0	Clear	6	...	...
13	37.0	13.5	Clear	2	136.0	124-148
14	40.0	13.5	Clear	3	...	...
15	42.0	13.5	Clear	6	139.7	127-152
16	43.0	13.5	Clear	15	133.6	117-142
17	46.0	13.5	Clear	3	...	...
18	48.5	13.0	Clear	5	138.0	129-162
19	47.0	13.0	Overcast	6	143.0	131-157
20	48.0	13.0	Overcast	1	...	...
21	46.0	13.0	Partly overcast	0	...	...
22	46.5	12.5	Overcast	0	...	...
23	45.5	12.5	Overcast	0	...	...
24	44.0	13.2	Overcast	0	...	...
25	42.5	15.0	Overcast	12	135.6	118-1 5
26	40.0	14.7	Clear	0	...	...
27	39.5	14.7	Clear	0	...	...
28	41.0	14.2	Overcast	0	...	...
29	42.5	14.5	Overcast	0	...	...
30	41.0	14.2	Overcast	0	...	...
May 1	43.0	14.0	Partly cloudy	0	...	...
2	41.0	14.2	Clear	0	...	...
3	42.0	15.5	Overcast	0	...	...
4	42.0	15.2	Clear	0	...	...
5	41.0	15.2	Clear	0	...	...
6	40.0	14.5	Clear	0	...	...
7	40.5	14.2	Clear	0	...	...
8	44.0	14.2	Partly cloudy	0	...	...
9	44.0	14.0	Partly cloudy	0	...	...
10	45.0	14.0	Partly cloudy	0	...	...
11	46.0	14.0	Clear	0	...	...
12	46.0	14.0	Clear	0	...	...
13	48.0	14.0	Clear	0	...	...
14	51.0	14.0	Partly cloudy	0	...	...
15	52.0	14.0	Clear	0	...	...
16	53.0	14.0	Clear	0	...	...

Table 8. --Continued

Date: 1958	Mean water temperature (°F.)	Water level (inches)	Weather	Number taken	Sea lampreys Total length (millimeters)	
					Average	Range
May 17	53.0	13.7	Clear	0	...	...
18	52.0	13.7	Overcast	0	...	...
19	53.0	13.7	Clear	0	...	...
20	51.0	13.5	Clear	0	...	...
21	49.0	13.2	Clear	0	...	...
22	50.0	13.0	Overcast	0	...	...
23	48.5	12.7	Cloudy	0	...	...
24	48.5	12.5	Clear	0	...	...
25	49.0	12.5	Overcast	0	...	...
26	49.0	12.5	Clear	0	...	...
27	52.0	12.2	Clear	0	...	...
28	53.0	12.0	Overcast	0	...	...
29	50.0	11.7	Partly cloudy	0	...	...
30	49.0	11.7	Partly cloudy	0	...	...
31	49.0	11.5	Overcast	0	...	...
June 1 to July 18	...	...	...	0	...	...
Total or average				4,796	20/ 144.3	94-182

1/ Based on 9 specimens.

2/ Based on 53 specimens.

3/ Based on 19 specimens.

4/ Based on 13 specimens.

5/ Based on 56 specimens.

6/ Based on 51 specimens.

7/ Based on 25 specimens.

8/ Based on 20 specimens.

9/ Based on 52 specimens.

10/ Based on 46 specimens.

11/ Based on 51 specimens.

12/ Based on 52 specimens.

13/ Based on 43 specimens.

14/ Based on 168 specimens.

15/ Based on 11 specimens.

16/ Based on 2 specimens.

17/ Based on 16 specimens.

18/ Based on 15 specimens.

19/ Based on 25 specimens.

20/ Based on 1,000 specimens.

Table 9. --Semi-monthly summary of larval lampreys (Petromyzon and Lampetra) moving downstream in the Carp Lake River between July 1, 1948, and June 30, 1958
[If a digit is not entered, the trap was not in operation]

Semi-monthly period	Numbers of larvae moving downstream									
	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58
July										
1-15	0	...	0	441	12	...	...	...	...	...
16-31	24	...	0	9	242	...	...	...	...	...
August										
1-15	7	...	2	5	0	...	...	...	...	...
16-31	1	...	0	1	0	...	...	...	...	...
September										
1-15	0	...	4	0	0	0	...	1	...	...
16-30	0	...	3	4	2	11	9	1	...	...
October										
1-15	6	0	62	62	3	68	19	2	3	3
16-31	7	0	17	29	7	7	7	5	21	4
November										
1-15	12	9	103	8	24	9	2	20	3	1
16-30	14	2	94	2	66	15	3	72	34	12
December										
1-15	2	1	20	2	26	33	0	32	2	0
16-31	5	3	23	0	31	6	1	21	0	0
January										
1-15	3	1	17	2	10	12	2	14	0	0
16-31	5	2	15	11	21	6	0	2	0	0
February										
1-15	1	2	11	1	14	8	0	5	0	0
16-28	6	0	3	1	23	3	1	0	0	0
March										
1-15	0	1	37	2	388	2	1	4	0	2
16-31	59	0	1,186	18	462	1,481	9	3	311	27
April										
1-15	7	931	8,367	115	405	4,726	653	14,302	738	106
16-30	33	4,711	1,221	279	673	6,543	2,437	3,423	2,966	351
May										
1-15	36	2,453	1,180	300	261	1,438	494	4,503	365	35
16-31	250	283	158	122	118	245	85	416	397	13
June										
1-15	8	3	94	4	50	195	2	134	33	6
16-30	6	1	30	169	0	19	0	1	8	0
Totals	492	8,403	12,647	1,587	2,838	14,827	3,725	22,961	4,881	560

Table 10. --Length-frequency distributions for newly transformed sea lampreys migrating downstream in the Carp Lake River in various winter seasons from 1948-49 through 1957-58

Total length 1/ (millimeters)	Number of newly transformed sea lampreys							
	1948-49	1949-50	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58
95	1	...	...	...	...	...	...	...
97	...	...	...	...	...	...	...	...
99	...	...	...	...	...	...	...	...
101	...	...	...	...	...	...	...	...
103	1	1	...	...	...	...	...	...
105	...	1	...	...	...	...	...	...
107	...	...	...	...	...	...	...	...
109	...	...	...	...	...	...	...	...
111	...	...	...	...	...	4	...	1
113	...	...	...	1	...	2	...	...
115	5	1	...	...	...	3	1	1
117	5	6	...	1	3	11	3	2
119	12	9	...	4	2	9	7	5
121	16	12	1	6	2	24	9	5
123	26	16	6	14	8	28	17	7
125	42	30	13	22	10	42	22	21
127	57	41	14	40	21	58	40	25
129	81	53	15	64	27	68	26	34
131	96	98	21	97	34	77	50	48
133	114	113	27	127	44	75	58	43
135	167	141	40	147	58	65	54	43
137	138	167	53	186	75	79	70	66
139	189	153	48	199	84	68	56	66
141	211	194	70	205	114	82	72	91
143	167	168	73	228	87	74	61	61
145	164	189	64	223	115	72	60	75
147	157	170	52	223	129	68	62	56
149	156	134	77	239	118	61	64	57
151	136	140	70	193	140	68	61	42
153	133	120	52	176	165	57	50	56
155	98	94	75	171	165	63	39	32
157	73	69	55	150	174	52	54	28
159	63	61	60	139	117	38	30	28
161	47	66	39	133	122	51	31	21
163	48	60	26	77	100	38	14	26
165	28	45	29	75	84	27	16	13
167	17	31	21	63	47	31	14	13
169	12	19	25	33	26	15	10	9
171	6	20	16	21	35	14	4	5
173	6	18	6	19	26	17	8	9
175	3	9	8	16	10	12	2	6
177	1	5	3	11	9	3	2	1
179	...	8	2	7	5	4	5	1
181	1	1	4	3	7	5	2	1

Table 10. --Continued

Total length 1/ (millimeters)	Number of newly transformed sea lampreys							
	1948-49	1949-50	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58
183	1	3	...	3	2	4	2	1
185	1	3	3	4	4	3	...	...
187	1	2	...	4	...	1	1	...
189	2	...	2	...	1	1	...	...
191	...	1	2	1	1	1	...	...
193	...	...	...	...	2	2	...	...
195	...	...	...	3	...	...	...	...
197	...	...	...	2	...	...	1	...
199	...	...	...	...	...	...	...	...
201	...	...	...	1	...	...	...	...
203	...	...	1	...	2	...	...	...
205	...	...	...	...	...	...	...	...
207	...	...	...	...	...	...	...	...
209	...	...	...	...	...	...	...	...
211	...	...	...	...	...	...	...	...
213	...	...	...	...	...	...	...	...
215	...	...	...	...	...	...	...	...
217	...	...	...	...	...	...	...	...
219	...	...	...	...	...	...	...	...
221	...	...	1	...	...	...	...	...
.	...	...	...	...	...	...	...	...
243	...	...	...	1	...	...	...	...
Totals	2,482	2,492	1,074	3,332	2,175	1,477	1,078	1,000
Mean length	143.6	145.2	148.8	147.6	151.4	144.4	144.4	144.3
Standard deviation	± 10.8	± 11.6	± 12.2	± 11.6	± 11.5	± 14.3	± 12.4	± 11.8

1/ Midpoint of 2-millimeter size group.

Table 11. --Average weight and range of weights of recently transformed sea lampreys in selected samples of the runs occurring in 6 winter seasons and total lengths of specimens in the samples
[Data for 1948-49 from Applegate and Brynildson, 1952]

Migratory season	Dates of collection	Number of specimens	Weight (grams)		Total length (millimeters)	
			Average	Range	Average	Range
1948-49	Nov. 20, 1948	216	4.1	2.3-8.4	143.0	121-172
1953-54	Mar. 26, 27, and Apr. 7, 1954	542	5.1	2.8-9.0	150.7	123-181
1954-55	Mar. 16, 1955	200	5.0	2.4-9.8	155.2	126-188
1955-56	Nov. 11 and 19, 1955	114	4.0	2.2-6.7	139.7	119-167
	Apr. 6, 1956	86	4.6	2.9-8.0	150.5	116-185
1956-57	Nov. 6, 16, and 23, 1956	200	3.6	1.8-7.5	138.7	114-182
1957-58	Nov. 19, 1957	168	4.3	2.4-7.9	147.7	123-180

Table 12. --Average length of recently transformed sea lampreys captured in the Carp Lake River trap in each month of the 1954-55 season

Month	Number of specimens	Average length (millimeters)
October	46	138.8
November	697	148.7
December	252	148.9
January	56	151.8
February	26	145.1
March	675	153.3
April	423	152.7

Table 13. --Length-frequency distribution for larval lampreys (Petromyzon and Lampetra) collected in the Carp Lake River trap in each month between November 1, 1949, and June 30, 1950

Total length 1/ (millimeters)	Number of larval lampreys								Total number in size group
	November	December	January	February	March	April	May	June	
49	...	...	...	...	...	...	1	...	1
51	...	...	...	...	...	...	...	...	0
53	...	...	...	...	...	...	...	...	0
55	...	...	...	...	...	...	...	...	0
57	...	...	...	...	...	...	...	...	0
59	...	...	...	...	...	1	1	...	2
61	...	...	...	...	...	2	1	...	3
63	...	...	...	...	...	2	...	...	2
65	...	...	...	...	...	...	...	...	0
67	...	...	...	...	...	...	1	...	1
69	...	...	...	...	...	1	2	...	3
71	1	...	...	...	...	5	5	...	11
73	...	1	...	...	...	6	2	...	9
75	...	...	...	...	...	2	3	...	5
77	...	...	...	...	...	1	2	...	3
79	...	...	...	...	...	6	1	...	7
81	...	...	...	...	...	1	3	...	4
83	1	...	...	...	...	6	3	...	10
85	...	1	...	...	...	3	2	...	6
87	...	...	...	...	...	6	8	...	14
89	...	...	...	...	...	5	10	...	15
91	...	...	...	...	...	12	6	...	18
93	...	...	...	...	...	6	13	...	19
95	...	...	...	...	...	7	13	...	20
97	...	...	...	...	...	12	15	...	27
99	...	...	...	...	...	6	14	...	20
101	...	...	...	...	...	5	22	...	27
103	...	...	...	...	...	11	21	...	32
105	...	...	...	...	...	19	18	...	37
107	...	...	...	...	...	20	15	...	35
109	...	...	...	...	1	19	23	...	43
111	1	...	...	...	...	21	53	1	76
113	1	...	...	...	...	29	60	...	90
115	1	...	...	1	...	32	71	...	105
117	...	...	...	...	...	29	63	...	92
119	...	...	...	...	...	54	65	...	119
121	1	...	...	...	...	37	80	...	118
123	...	...	...	...	...	48	100	...	148
125	...	...	...	...	...	63	84	...	147
127	...	...	...	...	...	76	122	...	198
129	1	...	...	...	...	62	103	...	166
131	...	...	...	...	...	59	121	1	181
133	...	...	...	...	...	60	104	...	164
135	...	...	1	1	...	56	81	1	140

Table 13. --Continued

Total length 1/ (millimeters)	Number of larval lampreys								Total number in size group
	November	December	January	February	March	April	May	June	
137	...	...	...	...	...	41	101	1	143
139	...	...	...	...	...	38	65	2	105
141	...	...	...	...	...	30	52	1	83
143	...	...	1	...	...	18	37	...	56
145	...	...	...	...	...	14	29	1	44
147	...	...	...	...	...	10	15	...	25
149	...	...	...	...	...	5	17	...	22
151	...	...	...	...	...	6	7	...	13
153	...	...	...	...	...	1	6	...	7
155	...	...	...	...	...	5	2	...	7
157	...	...	...	...	...	...	2	...	2
159	...	...	...	...	...	2	...	...	2
161	...	...	...	...	...	1	1	...	2
163	...	...	...	...	...	...	...	...	0
165	...	...	...	...	...	...	...	...	0
167	...	...	...	...	...	...	2	...	2
169	...	...	...	...	...	...	1	...	1
171	...	...	...	...	...	...	...	...	0
173	...	...	...	...	...	...	...	...	0
175	...	...	...	...	...	1	...	...	1
177	...	...	...	...	...	...	1	...	1
Totals	7	2	2	2	1	962	1, 650	8	2/2, 634

1/ Midpoint of 2-millimeter size group.

2/ Mean length: 123.9 mm.

Table 14. --Numbers and kinds of fishes other tham lampreys taken in the Carp

Species	August	September		October		November		December		January	
	16-31 1/	1-15	16-30	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-31
Rainbow trout	4	0	0	0	1	0	2	0	1	0	1
Brook trout	0	0	0	0	0	0	0	0	0	0	6
Northern pike	0	0	0	5	1	0	1	0	0	0	0
Grass pickerel	0	1	0	2	2	2	15	0	1	2	2
Walleye	0	0	0	0	0	0	1	0	0	0	0
Bluegill	0	0	0	5	0	2	0	0	0	0	0
Rock bass	2	1	0	0	0	0	0	0	0	0	0
White sucker											
Adults	0	0	0	2	0	0	10	1	4	0	0
Juveniles	8	7	40	18	0	2	26	4	42	6	27
Brown bullhead	0	0	0	0	0	0	0	0	0	0	0
Common shiner	0	0	0	0	0	0	0	0	38	2	0
Longnose dace	66	60	52	97	127	65	49	7	34	4	7
Threespine stickleback	0	0	0	0	0	0	0	0	0	0	0
Mottled sculpin	0	0	0	0	0	2	21	29	35	1	5
Lake chub	0	0	0	0	0	0	0	0	0	0	0
Unidentified	6	1	11	4	14	14	0	0	0	2	1
Total	86	70	103	133	145	87	125	41	155	17	49

1/ Trap placed in operation August 16, 1948.

2/ Trap inoperative March 26-April 18 due to severe floods.

3/ In addition to these fishes, various frogs, crawfish, water snakes, turtles, and an occasional muskrat were taken. No record of these animals was made.

4/ Range in total length of 62 specimens was 2.7 - 17.4 inches (average 5.8 inches).

5/ Range in total length of 22 specimens was 2.7 - 12.1 inches (average 6.7 inches).

Lake River trap in semimonthly periods, August 16, 1948, to June 30, 1949

February		March		April		May		June		Total[3/]
1-15	16-28	1-15	16-31[2/]	1-15[2/]	16-30	1-15	16-31	1-15	16-30	
0	0	0	2	0	13	3	14	29	0	[4/]70
0	0	4	3	0	18	0	0	0	0	[5/]31
0	0	0	0	0	5	0	0	0	0	[6/]12
5	1	0	1	1	0	0	0	0	0	[7/]35
0	0	0	0	0	0	0	0	0	0	[8/] 1
0	0	0	0	0	0	0	0	0	0	[9/] 7
0	1	0	0	0	0	7	0	3	0	[10/]14
0	0	0	0	0	0	26	4	0	0	47
4	8	10	8	0	0	6	1	3	12	232
0	1	0	0	0	0	0	5	0	0	6
0	0	0	4	0	195	264	406	448	119	1,476
0	0	0	7	0	66	290	544	1,021	55	2,551
0	0	0	0	0	87	38	74	59	5	263
0	0	0	0	0	0	0	0	7	2	102
0	0	0	0	0	10	66	137	137	5	355
0	1	0	0	0	0	1	4	0	2	61
9	12	14	25	1	394	701	1,189	1,707	200	5,263

6/ Range in total length was 6.2 - 24.0 inches (average 18.1 inches).

7/ Range in total length was 6.3 - 16.4 inches (average 9.5 inches).

8/ Total length, 10.2 inches.

9/ Immature individuals, 1 1/2 to 3 inches, total length.

10/ Immature individuals, 2 to 4 inches, total length, except for one fish which was 6.4 inches long.

Table 15. --Number and kinds of fish other than lampreys taken in the Carp

Species	November		December		January		February	
	1-15 1/	16-30	1-15	16-31	1-15	16-31	1-15	16-28
Rainbow trout	0	0	0	0	0	0	0	0
Brook trout	0	0	0	0	0	0	0	0
Northern pike	0	0	0	0	0	0	0	0
Grass pickerel	0	0	0	0	0	0	0	0
Rock bass	0	0	0	0	0	0	0	0
Yellow perch	0	1	1	0	0	0	0	0
White sucker								
Adult	0	0	0	0	0	0	0	0
Juveniles	15	19	7	10	9	0	0	0
Brown bullhead	0	0	0	0	0	0	0	0
Common shiner	8	16	3	1	4	0	0	0
Lake chub	0	0	2	0	2	0	0	0
Longnose dace	13	6	6	2	0	0	0	0
Threespine stickleback	0	0	0	0	0	0	0	0
Mottled sculpin	4	12	1	1	0	0	0	0
Central mudminnow	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0
Total	40	54	20	14	15	0	0	0

1/ Trap placed in operation November 1, 1949.

2/ Trap inoperative April 18-22 due to severe floods.

3/ In addition to these fishes, various frogs, crawfish, water snakes, turtles, and occasional muskrats were taken. No record of these animals was made.

4/ Range in total length of 10 specimens was 2.0 - 26.3 inches (average 9.2 inches).

Lake River trap in semimonthly periods, November 1, 1949, to June 30, 1950

March		April		May		June		Total 3/
1-15	16-31	1-15	16-30 2/	1-15	16-31	1-15	16-30	
0	0	2	2	0	5	0	3	4/ 12
0	0	2	1	0	5	1	0	5/ 9
0	1	0	6	8	7	4	0	6/ 26
0	0	5	0	0	1	0	0	7/ 6
0	0	0	0	1	3	7	0	8/ 11
1	1	1	3	0	1	2	0	9/ 11
0	0	9	8	5	22	0	0	44
0	0	23	7	81	276	22	16	485
0	1	0	0	0	7	10	5	23
0	0	35	138	171	633	664	131	1,804
0	0	0	0	2	1	0	0	7
0	0	31	19	37	219	112	5	450
0	0	8	11	63	104	37	4	227
0	0	0	0	7	31	16	0	72
0	0	12	0	50	39	4	23	128
0	1	1	0	0	0	0	0	2
1	4	129	195	425	1,354	879	187	3,317

5/ Range in total length was 4.7 - 9.5 inches (average 7.0 inches).

6/ Range in total length of 21 specimens was 9.4 - 27.2 inches (average 21.8 inches).

7/ Range in total length was 10.2 - 14.1 inches (average 11.1 inches).

8/ Range in total length of 8 specimens was 2.1 - 6.7 inches (average 4.3 inches).

9/ Immature individuals, 2 to 4 inches, total length.

Table 16. --Numbers and kinds of fish other than lampreys taken in the Carp

Species	July		August		September		October		November		December	
	1-15	16-31	1-7	...1/	...1/	22-30	1-15	16-31	1-15	16-30	1-15	16-31
Rainbow trout	0	0	0	...	...	0	0	0	0	0	0	0
Brook trout	0	0	0	...	...	0	1	1	0	0	0	0
Smallmouth bass	0	0	0	...	...	0	0	0	0	0	0	0
Northern pike	0	0	1	...	...	1	2	9	7	11	1	0
Grass pickerel	0	0	0	...	...	1	0	0	0	0	0	0
Rock bass	0	0	0	...	...	0	2	0	0	0	0	0
Yellow perch	0	0	0	...	...	6	8	1	0	5	0	0
White sucker												
Adults	0	0	0	...	...	0	0	0	0	0	0	0
Juveniles	0	0	3	...	...	2	22	4	14	23	3	3
Brown bullhead	0	0	0	...	...	0	0	1	0	0	0	0
Common shiner	0	0	0	...	...	3	10	10	3	15	3	0
Longnose dace	0	7	2	...	...	5	0	0	4	0	0	0
Threespine												
stickleback	0	2	0	...	...	0	0	2	1	0	0	0
Mottled sculpin	0	0	0	...	...	0	0	0	0	0	0	0
Central mudminnow	0	0	2	...	...	4	0	0	3	1	0	0
Creek chub	0	0	0	...	...	0	0	1	0	2	0	0
Unidentified	0	0	0	...	...	0	0	0	0	0	0	0
Total	0	9	8	...	...	22	45	29	32	57	7	3

1/ Trap not operated August 8-September 21 during overhaul and repair of structure.

2/ In addition to these fishes, various frogs, crawfish, water snakes, turtles, and occasional muskrats, beavers, and porcupines were taken. No record of these animals was made.

3/ Total lengths of 2 fish taken were 17.2 and 20.0 inches.

4/ Range in total length was 2.1 - 9.4 inches (average 4.2 inches).

Lake River trap in semimonthly periods, July 1, 1950, to June 30, 1951

January		February		March		April		May		June		Total 2/
1-15	16-31	1-15	16-28	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-30	
0	0	0	0	0	0	0	0	2	0	0	0	3/ 2
0	1	0	0	0	0	0	0	0	2	2	6	4/ 13
0	0	0	0	0	0	0	0	12	107	237	57	5/413
0	2	0	4	2	2	1	6	4	3	1	1	6/ 58
0	0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	1	0	0	1	1	0	5
0	5	0	0	1	0	20	3	2	3	0	0	7/ 54
0	0	0	0	0	0	0	1	0	1	0	0	2
2	7	5	4	11	13	14	26	64	31	0	0	251
0	0	2	0	0	0	0	2	21	4	9	3	42
0	0	0	0	0	3	5	36	312	197	332	55	984
0	0	0	0	0	0	0	22	30	32	86	16	204
0	0	0	0	0	2	6	36	278	89	5	16	437
0	0	0	0	2	0	2	7	4	12	14	13	54
0	0	0	0	0	3	9	20	33	4	8	0	87
0	0	0	0	0	10	0	0	0	0	0	0	13
0	0	0	0	0	0	0	0	2	4	7	0	13
2	15	7	8	16	33	58	159	764	490	702	167	2,633

5/ Thirteen fish taken ranged from 9.6 - 14.2 inches, total length (average 11.5 inches); all of remaining individuals were of fingerling size, 2 to 4 inches long.

6/ Range in total length was 7.4 - 29.5 inches (average 12.1 inches).

7/ Immature individuals, 2 to 4 inches, total length.

Table 17. --Numbers and kinds of fish other than lampreys taken in the Carp

Species	July		August		September		October		November		December	
	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-30	1-15	16-31
Rainbow trout	0	0	0	0	1	0	0	0	0	0	0	0
Brook trout	6	0	0	0	0	1	0	2	8	4	1	1
Smallmouth bass	573	29	20	0	1	0	1	0	0	0	0	0
Northern pike	0	0	0	0	0	0	5	4	12	7	3	3
Walleye	0	0	0	0	0	0	0	3	0	0	0	0
Bluegill	15	0	0	0	2	3	137	88	18	13	11	5
Rock bass	0	0	0	3	2	0	31	5	2	1	0	0
Yellow perch	3	2	0	2	1	3	35	10	23	19	5	6
White sucker Juveniles	38	0	0	0	4	39	71	9	14	9	6	20
Brown bullhead	15	7	9	2	0	0	0	0	0	0	0	0
Common shiner	56	60	0	6	5	4	23	12	21	75	97	30
Longnose dace	4	34	3	4	10	11	39	32	27	15	6	10
Threespine stickleback	52	9	10	0	0	2	33	4	0	9	30	8
Mottled sculpin	10	6	1	0	0	1	1	0	2	0	9	0
Central mudminnow	0	0	0	0	2	0	3	7	3	1	3	2
Creek chub	0	0	2	0	0	0	0	0	0	0	4	0
Total	772	147	45	17	28	64	379	176	130	153	175	85

1/ In addition to these fishes, 2 crawfish (Cambarus diogenes), 22 leopard frogs (Rana pipiens), 2 painted turtles (Chrysemys picta), 7 muskrats (Ondatra z. zibethica), 3 beaver (Castor canadensis), and 1 shrew (Sorex cinereus) were taken.

2/ Total length of 1 fish taken was 3.2 inches.

3/ Twenty fish taken ranged from 4.7 - 9.2 inches, total length (average 6.5 inches); 16 additional individuals were of fingerling size, 2 to 3 inches long.

Lake River trap in semimonthly periods, July 1, 1951, to June 30, 1952

January		February		March		April		May		June		Total 1/
1-15	16-31	1-15	16-28	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-30	
0	0	0	0	0	0	0	0	0	0	0	0	2/ 1
0	2	4	0	0	0	0	0	0	2	2	3	3/ 36
0	0	0	0	0	0	0	2	70	0	2	0	4/ 698
1	2	1	0	0	1	1	0	1	0	0	0	5/ 41
0	0	1	0	0	0	0	1	0	0	0	0	5
1	0	1	0	1	1	0	44	2	3	19	160	6/ 524
0	0	0	0	0	0	0	0	0	0	0	3	47
7	5	2	1	3	1	5	1,466	929	159	219	42	7/ 2,948
16	32	23	5	0	7	0	0	18	0	0	1	312
0	0	0	0	0	0	0	27	17	7	8	4	96
7	12	18	6	36	83	56	202	73	93	54	44	1,073
1	0	35	10	19	35	28	35	16	0	0	3	377
4	3	5	2	16	22	13	172	426	265	92	65	1,242
0	0	0	0	4	8	5	29	19	22	2	2	121
0	0	1	0	5	16	6	14	60	31	8	8	170
0	0	0	0	0	0	0	0	0	0	0	0	6
37	56	91	24	84	174	114	1,992	1,631	582	406	335	7,697

4/ Range in total length of 74 specimens was 7.4 - 15.7 inches (average 11.5 inches); all others were of fingerling size, 2 to 4 inches long.

5/ Range in total length of 38 specimens was 9.3 - 17.2 inches (average 11.6 inches).

6/ Immature individuals, 1 1/2 to 3 inches, total length.

7/ Immature individuals, 2 to 4 inches, total length.

Table 18. --Numbers and kinds of fish other than lampreys taken in the Carp

Species	July		August		September		October		November		December	
	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-30	1-15	16-31 1/
Rainbow trout	0	0	0	0	0	0	0	0	0	0	0	0
Brook trout	0	0	0	0	0	0	0	0	0	7	7	6
Brown trout	0	0	0	0	0	0	0	0	0	0	0	0
Smallmouth bass	0	3	0	0	0	0	0	0	0	0	0	0
Northern pike	0	1	0	0	0	0	0	0	0	2	5	11
Bluegill	6	480	0	0	5	0	0	0	0	0	1	0
Rock bass	0	0	0	1	0	0	0	0	0	0	0	0
Yellow perch	1	57	0	5	8	1	5	2	3	8	4	25
White sucker Juveniles	0	0	0	12	0	0	2	1	2	68	14	32
Brown bullhead	0	6	0	0	0	0	0	0	0	0	0	0
Common shiner	33	40	17	2	4	6	14	4	3	4	10	9
Threespine stickleback	14	37	7	0	0	0	0	1	0	0	0	0
Mottled sculpin	2	5	1	0	0	0	0	1	0	0	0	3
Central mudminnow	2	8	2	0	0	0	0	0	0	0	9	0
Johnny darter	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous 12/	0	0	0	0	0	0	0	0	1	6	2	0
Total	58	637	27	20	17	7	21	9	9	95	52	86

1/ Trap inoperative December 27-29 and February 22-23 due to ice formations.

2/ Trap inoperative March 24-26 due to severe floods.

3/ Trap taken out of operation on June 19, 1953.

4/ In addition to these fishes, 39 crawfish (Cambarus diogenes), 16 leopard frogs (Rana pipiens), 1 painted turtle (Chrysemys picta), 1 water snake (Natrix s. sipedon), 3 muskrats (Ondatra z. zibethica), and 1 beaver (Castor canadensis) were taken.

5/ Range in total length was 5.0 - 6.0 inches (average 5.4 inches).

6/ Range in total length was 3.3 - 8.0 inches (average 5.9 inches).

Lake River trap in semimonthly periods, July 1, 1952, to June 19, 1953

January		February		March		April		May		June		Total[4]
1-15	16-31	1-15	16-28[1]	1-15	16-31[2]	1-15	16-30	1-15	16-31	1-15	16-19[3]	
0	0	0	0	0	0	0	0	0	1	3	1	[5] 5
5	5	0	0	0	0	0	4	1	3	0	1	[6] 39
0	0	0	0	0	0	0	1	0	1	0	0	[7] 2
0	0	0	0	0	0	0	2	0	0	1	3	[8] 9
3	0	0	0	0	3	1	0	0	0	1	0	[9] 27
0	0	0	0	0	0	0	1	0	0	9	9	[10] 511
0	0	0	0	0	0	0	0	0	1	8	0	10
33	1	15	1	16	2	857	907	1,413	93	1,116	116	[11] 4,689
19	15	7	5	4	0	0	0	0	0	0	0	181
0	0	0	0	0	0	0	0	0	0	0	0	6
14	40	31	6	20	26	34	0	37	27	79	27	487
1	8	0	0	0	0	6	32	159	57	23	6	351
5	3	1	0	4	0	1	88	1,516	1,229	251	37	3,147
0	0	0	1	11	9	9	36	38	4	16	0	145
0	0	0	0	0	0	0	0	52	21	19	10	102
0	1	0	0	9	0	0	19	24	0	6	5	73
80	73	54	13	64	40	908	1,090	3,240	1,437	1,532	215	9,784

7/ Total lengths of 2 fish taken were 15.0 and 18.0 inches.

8/ Range in length of 3 individuals was 9.7 - 11.2 inches (average 10.5 inches).

9/ Range in total length was 8.7 - 24.2 inches (average 12.3 inches).

10/ Immature individuals, 1 1/2 to 3 inches, total length.

11/ Immature individuals, 2 to 4 inches, total length.

12/ Composed of 20 longnose dace, 39 northern redbelly dace, 10 creek chubs, and 4 hornyhead chubs.

Table 19. --Numbers and kinds of fish other than lampreys taken in the Carp

Species	September		October		November		December		January	
	8-15 1/	16-30	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-31
Rainbow trout	0	0	0	0	0	0	0	2	3	0
Brook trout	0	1	1	0	0	0	2	2	4	3
Smallmouth bass	0	0	0	0	0	0	0	0	0	0
Northern pike	0	0	0	0	1	1	0	0	0	0
Bluegill	0	0	1	0	0	0	0	0	1	0
Yellow perch	7	17	17	12	173	52	43	596	116	138
White sucker										
Adults	2	10	0	0	0	1	0	0	0	0
Juveniles	1	10	0	0	3	4	14	6	4	14
Brown bullhead	1	1	0	0	0	0	0	0	0	0
Carp	0	0	0	0	0	0	0	0	0	0
Common shiner	0	34	39	46	11	0	5	16	17	17
Longnose dace	6	6	15	15	2	6	0	1	0	0
Threespine stickleback	3	0	1	0	0	0	0	0	0	0
Mottled sculpin	0	0	0	0	2	0	2	2	4	8
Central mudminnow	0	6	17	0	4	0	8	0	0	3
Hornyhead chub	0	0	0	0	0	0	0	0	0	0
Total	20	85	91	73	196	64	74	625	149	183

1/ Trap placed in operation September 8, 1953

2/ Trap out of operation April 27-30 due to severe flood.

3/ In addition to these fishes, 76 crawfish and 271 frogs (neither identified as to species), 1 water snake (Natrix s. sipedon), 1 snapping turtle (Chelydra serpentina), and 1 muskrat (Ondatra z. sibethica) were taken.

4/ Range in total length of 5 fish taken between September and January was 5.4 - 6.4 inches (average 6.0 inches); range in total length of 5 fish taken in May was 11.3 - 16.7 inches (average 14.1 inches).

Lake River trap in semimonthly periods; September 8, 1953, to June 30, 1954

February		March		April		May		June		Total [3]
1-15	16-28	1-15	16-31	1-15	16-30[2]	1-15	16-31	1-15	16-30	
0	0	0	0	0	0	5	0	0	0	[4] 10
3	0	7	4	0	11	2	5	6	3	[5] 54
0	0	0	0	0	0	12	4	3	0	[6] 19
0	0	0	0	2	5	3	0	0	0	[7] 12
0	0	0	0	0	0	0	5	172	457	[8] 636
22	18	38	47	92	6	11	35	2,710	335	[9] 4,485
0	0	0	0	0	0	0	0	0	0	13
2	1	20	7	0	0	2	2	0	0	90
0	0	0	0	0	0	13	5	10	3	33
0	0	0	0	0	0	0	0	0	6	[10] 6
5	5	63	58	96	99	110	119	120	98	958
0	3	14	64	24	59	0	4	0	19	238
0	0	0	0	14	65	37	286	90	8	504
1	1	11	12	13	19	11	20	17	2	125
4	4	10	51	176	240	41	12	11	16	603
0	0	0	0	0	0	0	0	2	4	6
37	32	163	243	417	504	247	497	3,141	951	7,792

5/ Range in total length was 4.1 - 8.3 inches (average 6.2 inches) except for 6 fish of fingerling size, 2 to 3 inches long.

6/ Range in total length was 5.6 - 11.6 inches (average 9.0 inches).

7/ Two fish taken in November were 7.2 and 10.2 inches, total length; 10 fish taken in April and May ranged from 12.5 to 23.0 inches (average 16.5 inches).

8/ Immature individuals, 1 1/2 to 3 inches, total length.

9/ Immature individuals, 2 to 4 inches, total length.

10/ Range in total length was 18.0 - 30.0 inches (average 26.3 inches).

Table 20. --Numbers and kinds of fish other than lampreys taken in the Carp

Species	September	October		November		December		January	
	14-30 1/	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-31
Rainbow trout	0	0	0	2	1	0	0	0	0
Brook trout	1	1	1	6	0	19	18	3	1
Brown trout	0	0	0	0	0	0	0	0	0
Smallmouth bass	0	0	0	0	0	0	0	0	0
Northern pike	2	4	14	35	9	4	6	1	0
Bluegill	207	86	19	45	1	16	19	1	2
Yellow perch	16	14	21	172	1	150	67	17	2
White sucker									
Adults	0	0	0	0	0	0	0	0	0
Juveniles	6	0	27	19	17	55	70	15	2
Brown bullhead	0	0	0	0	0	0	0	0	0
Common shiner	55	26	47	108	51	76	60	67	27
Longnose dace	6	6	13	6	9	14	10	1	6
Threespine stickleback	0	3	0	3	6	7	6	0	0
Mottled sculpin	8	11	4	17	4	0	2	10	3
Central mudminnow	2	12	10	22	5	8	20	8	2
Hornyhead chub	0	0	0	0	0	0	0	0	0
Miscellaneous	0	0	1	0	0	0	0	0	0
Total	303	163	157	435	104	349	278	123	45

1/ Trap placed in operation September 14, 1954.

2/ In addition to these fishes, 28 crawfish and 114 frogs (neither identified as to species), 2 water snakes (Natrix s. sipedon), 1 snapping turtle (Chelydra serpentina), 10 muskrats (Ondatra z. zibethica), and 1 beaver (Castor canadensis) were taken.

3/ Range in total length was 5.0 - 12.6 inches (average 8.0 inches).

Lake River trap in semimonthly periods, September 14, 1954, to June 30, 1955

February		March		April		May		June		Total 2/
1-15	16-28	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-30	
0	0	0	0	0	0	1	0	0	0	3/ 4
0	0	0	1	1	4	5	2	0	1	4/ 64
0	0	0	0	2	2	0	0	0	0	5/ 4
0	0	0	0	0	0	5	0	0	0	6/ 5
0	2	0	1	3	5	4	0	0	0	7/ 90
0	0	1	1	1	7	13	1	77	1	498
2	3	4	19	10	90	67	33	266	23	8/977
0	0	0	0	0	3	3	1	0	0	7
0	0	0	2	0	0	1	0	0	0	214
0	0	0	0	0	1	6	0	0	0	7
11	7	13	16	99	96	100	119	190	78	1,246
2	4	13	70	35	67	34	9	22	25	352
0	0	0	5	290	246	240	173	109	42	1,130
2	2	8	11	28	47	26	7	4	0	194
0	0	3	64	47	76	88	9	0	5	381
0	0	0	0	0	0	0	2	1	0	3
0	0	0	0	1	0	0	4	0	0	6
17	18	42	190	517	644	593	360	669	175	5,182

4/ Range in total length was 2.4 - 10.0 inches (average 6.6 inches).

5/ Range in total length was 7.2 - 7.9 inches (average 7.6 inches).

6/ Range in total length was 6.8 - 11.6 inches (average 9.9 inches).

7/ Range in total length was 9.0 - 26.2 inches (average 12.2 inches).

8/ Immature individuals, 2 to 4 inches, total length.

Table 21. --Numbers and kinds of fish other than lampreys taken in the Carp

Species	September		October		November		December		January	
	7-15 1/	16-30	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-31
Rainbow trout	0	0	0	0	0	0	0	0	0	0
Brook trout	0	0	2	3	0	2	1	2	0	0
Smallmouth bass	0	0	0	0	0	0	0	0	0	0
Northern pike	0	0	0	0	0	0	0	0	0	0
Walleye	0	0	0	0	0	0	0	0	0	0
Bluegill	0	2	0	0	0	0	0	0	0	0
Yellow perch	5	3	25	9	38	559	93	109	33	18
White suckers										
Adults	0	0	0	1	0	0	0	0	0	0
Juveniles	0	0	0	0	17	3	8	5	0	1
Common shiner	4	38	97	82	36	35	46	42	4	4
Longnose dace	0	0	0	5	2	3	1	0	0	0
Threespine stickleback	0	4	19	13	5	4	0	3	4	0
Mottled sculpin	0	0	0	1	0	5	2	17	10	5
Central mudminnow	0	0	10	32	6	17	8	20	0	0
Hornyhead chub	0	0	2	0	0	0	1	0	0	0
Johnny darter	0	0	0	0	0	2	0	0	0	0
Total	9	47	155	146	104	630	160	198	51	28

1/ Trap placed in operation September 7, 1955.

2/ In addition to these fishes, 75 crawfish and 27 frogs (neither identified as to species), 2 water snakes (Natrix s. sipedon), and 1 muskrat (Ondatra z. zibethica) were taken.

3/ Total length of 1 fish taken was 15.3 inches.

4/ Range in total length was 3.8 - 9.4 inches (average 5.8 inches).

Lake River trap in semimonthly periods, September 7, 1955, to June 30, 1956

February		March		April		May		June		Total 2/
1-15	16-29	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-30	
0	0	0	0	0	0	0	0	1	0	3/ 1
0	0	0	0	3	1	6	7	3	0	4/ 30
0	0	0	0	0	0	4	0	71	151	5/ 226
0	0	0	0	1	16	10	0	2	0	6/ 29
0	0	0	0	0	0	2	0	1	0	7/ 3
0	0	0	0	0	0	2	0	0	0	4
32	22	1	10	128	46	523	98	47	330	8/ 2,129
0	0	0	0	0	0	1	0	0	0	2
0	0	0	0	0	1	12	0	0	1	48
10	9	4	3	43	127	362	157	113	111	1,327
0	0	0	0	0	0	18	19	4	0	52
0	0	1	0	92	69	92	15	6	0	327
1	2	2	3	13	20	26	3	2	2	114
1	0	2	2	116	131	181	26	4	5	561
0	0	0	0	0	0	0	0	0	0	3
0	0	0	0	2	2	12	4	0	0	22
44	33	10	18	398	413	1,251	329	254	600	4,878

5/ Immature individuals, 2 1/2 to 4 1/2 inches, total length, except for 1 specimen which was 10 inches long.

6/ Range in total length was 16.1 - 38.2 inches (average 22.8 inches).

7/ Total lengths of 2 specimens were 8.2 and 9.2 inches.

8/ Immature individuals, 2 to 4 inches, total length.

Table 22. --Numbers and kinds of fish other than lampreys taken in the Carp

Species	October		November		December		January	
	1-15 1/	16-31	1-15	16-30	1-15	16-31	1-15	16-31
Rainbow trout	0	0	0	0	0	0	0	0
Brook trout	0	0	0	5	1	6	5	0
Smallmouth bass	2	3	0	0	0	0	0	1
Northern pike	7	4	10	12	1	5	2	1
Walleye	0	0	0	0	0	0	0	0
Bluegill	0	0	0	0	0	0	0	0
Rock bass	0	0	0	0	0	0	0	0
Yellow perch	20	24	11	29	12	82	62	22
White sucker								
Adult	1	0	0	0	0	0	0	0
Juveniles	5	0	0	8	0	5	1	0
Brown bullhead	0	0	0	0	0	0	0	0
Common shiner	5	5	0	11	0	21	10	4
Longnose dace	1	5	0	0	0	0	0	0
Threespine stickleback	0	0	0	2	0	0	0	0
Mottled sculpin	0	1	0	0	1	0	0	0
Central mudminnow	2	2	2	8	0	0	0	0
Hornyhead chub	0	0	0	0	0	0	0	0
Total	43	44	23	75	15	119	80	28

1/ Trap placed in operation September 30, 1956.

2/ In addition to these fishes, 36 crawfish and 40 frogs (neither identified as to species), 1 muskrat (Ondatra z. zibethica), and 1 mallard duck were taken.

3/ Total lengths of 3 individuals were 6.4, 15.8, and 21.2 inches.

4/ Range in total length was 4.2 - 11.7 inches (average 7.2 inches).

Lake River trap in semimonthly periods, October 1, 1956, to June 30, 1957

February		March		April		May		June		Total 2/
1-15	16-28	1-15	16-28	1-15	16-30	1-15	16-31	1-15	16-30	
0	0	0	0	0	0	3	0	0	0	3/ 3
0	1	0	3	3	1	5	5	2	0	4/ 37
0	2	0	0	5	3	2	19	14	0	5/ 51
0	0	0	0	3	2	0	1	0	0	6/ 48
0	0	0	1	0	0	1	0	0	0	7/ 2
0	0	0	0	0	0	0	82	655	776	8/ 1,513
0	0	0	0	0	0	2	2	0	1	5
4	26	9	21	70	25	11	7	0	8	9/ 443
0	0	0	0	0	0	1	0	0	0	2
0	2	0	4	0	0	5	3	0	0	33
0	0	0	0	0	8	3	6	5	10	32
0	9	0	3	43	75	47	28	34	45	340
0	0	0	0	0	10	19	20	0	0	55
0	0	0	0	13	228	107	75	22	0	447
0	6	3	1	17	15	5	2	1	0	52
0	0	0	31	154	196	29	48	24	2	498
0	0	0	0	0	0	1	0	0	1	2
4	46	12	64	308	563	241	298	757	843	3,563

5/ Immature individuals, 3 - 6 inches, total length, except for 2 fish, 12.5 and 14.2 inches long.

6/ Range in total length was 7.2 - 24.2 inches (average 11.3 inches).

7/ Total length of 1 fish was 11.2 inches.

8/ Immature individuals 1 1/2 - 3 inches, total length.

9/ Immature individuals, 2 - 4 inches, total length.

Table 23. --Numbers and kinds of fish other than lampreys taken in the Carp

Species	October		November		December		January	
	2-15 1/	16-31	1-15	16-30	1-15	16-31	1-15	16-31
Brook trout	1	2	6	6	9	2	2	2
Northern pike	1	9	28	16	15	10	0	2
Bluegill	1	0	0	0	0	0	0	0
Rock bass	1	0	0	0	0	0	0	0
Yellow perch	3	3	21	28	41	16	9	7
White sucker								
Adults	0	0	0	0	1	0	0	0
Juveniles	17	27	27	24	10	28	3	0
Brown bullhead	0	0	0	0	0	0	0	0
Common shiner	72	65	31	11	16	22	12	13
Longnose dace	31	4	0	3	0	0	0	0
Threespine stickleback	3	10	0	0	0	0	0	0
Central mudminnow	7	22	36	34	4	4	5	3
Hornyhead chub	0	0	0	2	0	0	0	0
Creek chub	0	0	0	3	0	1	0	1
Johnny darter	0	0	0	0	0	0	0	0
Total	137	142	149	127	96	83	31	28

1/ Trap placed in operation October 1, 1957.

2/ In addition to these fishes, 32 crawfish and 64 frogs (neither identified as to species), 1 mudpuppy (Necturus sp.), 1 muskrat (Ondatra z. zibethica), 1 unidentified mole, and 1 beer can were taken in the trap during this period.

3/ Range in total length was 4.8 - 10.5 inches (average 6.4 inches).

Lake River trap in semimonthly periods, October 2, 1957, to July 18, 1958

February		March		April		May		June		Total 2/
1-15	16-28	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-30	
1	0	5	0	0	1	1	0	0	0	3/ 38
0	0	0	0	0	0	0	0	0	0	4/ 81
0	0	0	0	2	1	0	0	0	0	4
0	0	0	0	0	1	0	0	0	0	2
8	2	20	4	0	0	8	4	0	0	5/174
0	0	0	0	0	0	0	0	0	0	1
4	0	7	2	7	8	1	1	0	0	166
0	0	0	0	0	3	0	0	0	0	3
0	0	12	13	30	60	137	16	4	6	520
0	0	1	0	4	20	70	6	13	8	160
0	0	2	68	56	83	95	63	2	20	402
12	1	37	140	112	48	117	26	8	3	619
0	0	0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	0	0	5
0	0	0	0	0	4	0	0	0	0	4
25	3	84	227	211	230	429	116	27	37	2,182

4/ Range in total length was 7.8 - 18.2 inches (average 11.4 inches).

5/ Immature individuals, 2 to 4 inches, total length.

Table 24. --List of common and scientific names of lampreys and fishes mentioned in this report

Common name	Scientific name
American brook lamprey	Lampetra lamottei
Bluegill	Lepomis macrochirus
Brook trout	Salvelinus fontinalis
Brown bullhead	Ictalurus nebulosus
Brown trout	Salmo trutta
Carp	Cyprinus carpio
Central mudminnow	Umbra limi
Common shiner	Notropis cornutus
Creek chub	Semotilus atromaculatus
Grass pickerel	Esox americanus vermiculatus
Hornyhead chub	Hybopsis biguttata
Johnny darter	Etheostoma nigrum
Lake chub	Hybopsis plumbea
Longnose dace	Rhynichthys cataractae
Mottled sculpin	Cottus bairdi
Northern pike	Esox lucius
Rainbow trout	Salmo gairdneri
Rock bass	Ambloplites rupestris
Sea lamprey	Petromyzon marinus
Silver lamprey	Ichthyomyzon unicuspis
Smallmouth bass	Micropterus dolomieui
Threespine stickleback	Gasterosteus aculeatus

Table 24. --Continued

Common name	Scientific name
Walleye	Stizostedion v. vitreum
White sucker	Catostomus commersoni
Yellow perch	Perca flavescens

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